

PRC Environmental Management, Inc.
233 North Michigan Avenue
Suite 1621
Chicago, IL 60601
312-856-8700
Fax 312-938-0118

RECEIVED
OCT 17 1994



**PRELIMINARY ASSESSMENT/
VISUAL SITE INSPECTION**

**KUNKLE FOUNDRY COMPANY, INC.
ANDREWS, INDIANA
IND 064 708 845**

FINAL REPORT

EPA Region 5 Records Ctr.



307182

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460**

Work Assignment No.	:	C05087
EPA Region	:	5
Site No.	:	IND 064 708 845
Date Prepared	:	December 27, 1993
Contract No.	:	68-W9-0006
PRC No.	:	009-C05087IN6L
Prepared by	:	PRC Environmental Management, Inc. (Patrick McGowan)
Contractor Project Manager	:	Shin Ahn
Telephone No.	:	(312) 856-8700
EPA Work Assignment Manager	:	Kevin Pierard
Telephone No.	:	(312) 886-4448

CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION	1
2.0 FACILITY DESCRIPTION	4
2.1 FACILITY LOCATION	4
2.2 FACILITY OPERATIONS	4
2.3 WASTE GENERATION AND MANAGEMENT	6
2.4 HISTORY OF DOCUMENTED RELEASES	14
2.5 REGULATORY HISTORY	14
2.5.1 Permitting History	14
2.5.2 Compliance	15
2.5.3 Waste Sand Pile Closure and Sampling Activities	17
2.6 ENVIRONMENTAL SETTING	18
2.6.1 Climate	18
2.6.2 Flood Plain and Surface Water	19
2.6.3 Geology and Soils	19
2.6.4 Groundwater	19
2.7 RECEPTORS	20
3.0 SOLID WASTE MANAGEMENT UNITS	21
4.0 AREAS OF CONCERN	31
5.0 CONCLUSIONS AND RECOMMENDATIONS	32
REFERENCES	38

Appendix

A	EPA PRELIMINARY ASSESSMENT FORM 2070-12
B	VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS
C	VISUAL SITE INSPECTION FIELD NOTES

FIGURES

<u>Figure</u>		<u>Page</u>
1	FACILITY LOCATION	5
2	FACILITY LAYOUT	8

TABLES

<u>Table</u>		<u>Page</u>
1	SOLID WASTE MANAGEMENT UNITS	7
2	SOLID WASTES	9
3	SWMU AND AOC SUMMARY	37

ENFORCEMENT
CONFIDENTIAL

EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Kunkle Foundry Company, Inc. (Kunkle), facility in Andrews, Huntington County, Indiana. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Appendix A to assist in prioritizing RCRA facilities for corrective action.

The Kunkle facility manufactures brass pressure relief valves, check valves, and bearing sleeves. The facility generates the following waste streams: foundry sand (D008), foundry sand (nonhazardous), core waste (nonhazardous), isocure scrubber waste (F001), oil sand waste (nonhazardous), shell sand waste (nonhazardous), air set/no bake waste (nonhazardous), isocure sand waste (nonhazardous), used oil (nonhazardous), old waste crucibles (unknown), waste crucibles (D008), wheelabrator dust (D008), copper grindings (nonhazardous), old binders (nonhazardous), and soil cuttings (unknown). The 30,000-square foot facility occupies 4 acres in a mixed-use area and employs 27 people. The facility is bordered on the north by a farm; on the west by Preferred Hose and Couplings, an industrial facility; on the south by railroad tracks and by a park and residences; and on the east by residences.

The facility began operation in about 1955 and has always been a brass foundry. The facility was owned by Essex International (Essex) until about 1970 when Kunkle purchased this facility. Kunkle Foundry Company, Inc. was purchased by Keystone International of Houston, Texas in November 1991.

The PA/VSI identified the following twelve SWMUs:

Solid Waste Management Units

1. Former Waste Sand Pile
2. Waste Sand Pile

RELEASED 3/22/06
DATE _____
RIN # _____
INITIALS mt

EXHIBIT
CONFIDENTIAL

3. Muller Room
4. Sand Treatment Unit
5. Old Binder Storage Area
6. Isocure Scrubber Waste Storage Area
7. Wheelabrator Waste Storage Area
8. Refractory Waste Storage Area
9. Satellite Accumulation Areas
10. Crucible Storage Area
11. Used Oil Storage Area

No AOCs were identified.

The Former Waste Sand Pile (SWMU 1) was located in on-site soils until 1988 when it was removed. SWMU 1 is currently undergoing closure at the facility. The subsurface soils at SWMU 1 have been tested as part of the RCRA closure for this area. Contaminated soils will be excavated and removed as part of the closure. Groundwater immediately downgradient of this SWMU was tested and no contamination was found.

The potential for release to environmental media from SWMU 2 is moderate. The potential for release from SWMUs 3 through 9 and SWMU 11 is low. It is uncertain whether the crucibles stored in SWMU 10 are hazardous or contain hazardous constituents, therefore the potential for release to environmental media from this SWMU is not known. These conclusions are discussed below for each environmental medium.

Groundwater at the facility was tested as part of the closure of SWMU 1. The results of the sampling revealed no contamination. Therefore, the potential for release to groundwater from SWMU 1 is low. The potential for release to groundwater from all other SWMUs is low as well.

Surface water run-off from the facility could release hazardous constituents from the facility. The waste crucibles stored at SWMU 10 are not covered or contained. SWMU 1 is covered with plastic, therefore the potential for release to surface water is low. SWMU 2 is a pile of nonhazardous sand that is outdoors and uncovered. There is no direct path of surface water drainage from this SWMU. The potential for release from all other SWMUs to surface water is low.

RELEASED
DATE 8/22/86
RIN #
INITIALS mv

ENVIRONMENT
CONFIDENTIAL

Soils under SWMU 1 show contamination. This contamination will be addressed in the closure activities. Contamination of soil under SWMU 2 and SWMU 10 is possible because the waste is not stored in a contained area. The potential for release from all other SWMUs is low.

Air release potential is low for all SWMUs.

Based on the PA/VSI findings, PRC recommends the following further actions: (1) continue closure activities for SWMU 1, (2) provide secondary containment under SWMU 2 and take surficial soil samples to determine if there has been a release of hazardous constituents, (3) sell or dispose of the binders at SWMU 5, and (4) characterize and dispose of the crucibles at SWMU 10, if the crucibles are hazardous, RCRA close the unit. PRC recommends no further action at the remaining SWMUs.

RELEASED
DATE 8/22/06
RIN #
INITIALS

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Kunkle Foundry Company, Inc. (Kunkle), facility (EPA Identification No. IND 064 708 845) in Andrews, Huntington County, Indiana. The

PA was completed on May 31, 1993. PRC gathered and reviewed information from the Indiana Department of Environmental Management (IDEM) and from EPA Region 5 RCRA files. Additional information was gathered from the Federal Emergency Management Agency (FEMA), National Wetlands Index (NWI), U.S. Department of Agriculture (USDA), U.S. Geological Survey (USGS), National Oceanic and Atmospheric Agency (NOAA), and Rand McNally. The VSI was conducted on June 1, 1993. It included interviews with facility representatives and a walk-through inspection of the facility. PRC identified twelve SWMUs and no AOCs at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Appendix A. The VSI is summarized and 16 inspection photographs are included in Appendix B. Field notes from the VSI are included in Appendix C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors.

2.1 FACILITY LOCATION

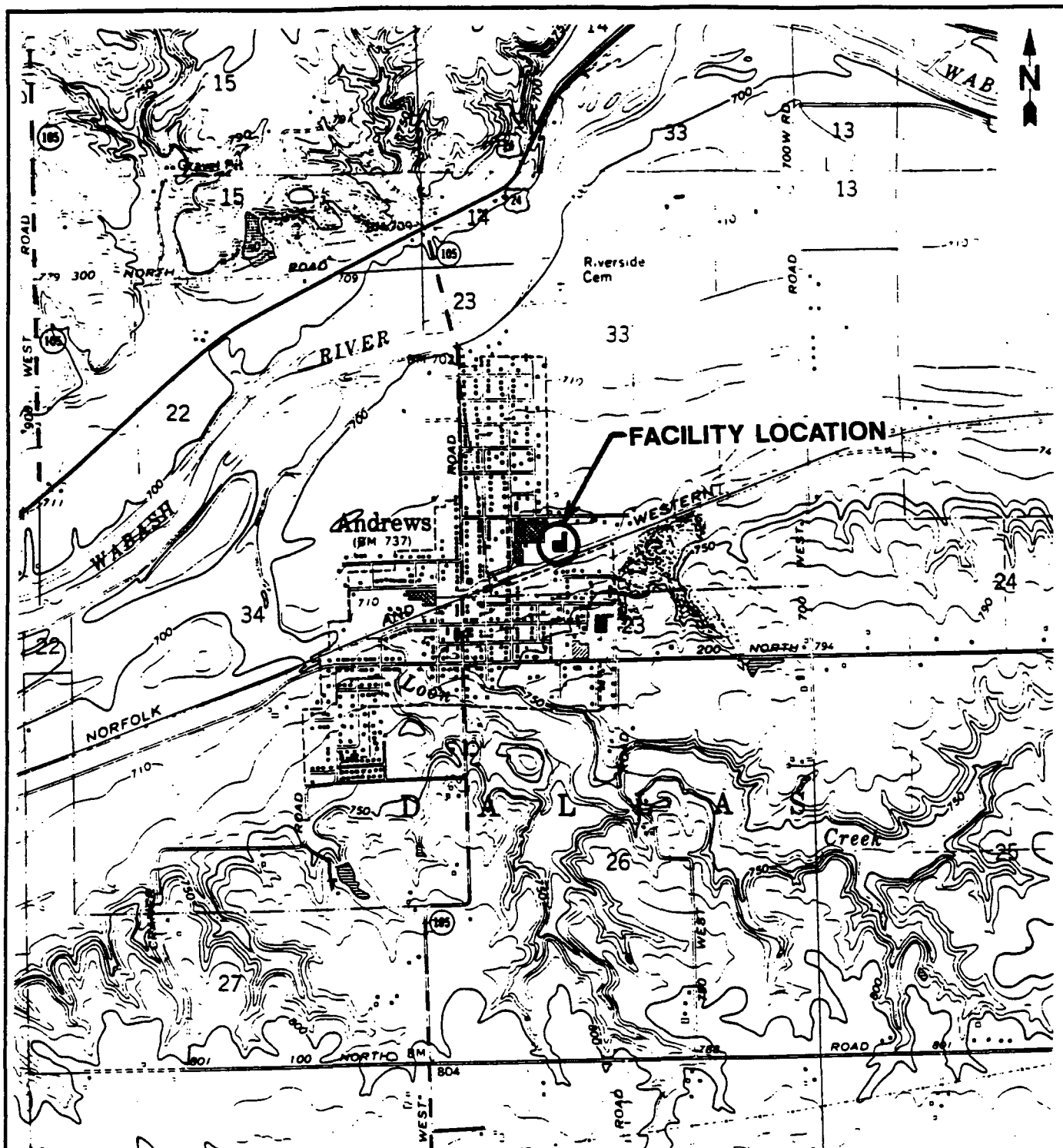
The Kunkle facility is located at 407 California Avenue in Andrews, Huntington County, Indiana. Figure 1 shows the location of the facility in relation to the surrounding topographic features (latitude 40°51'40"N and longitude 85°35'48"W). The facility occupies 4 acres in a mixed-use area.

The facility is bordered on the north by a farm; on the west by Preferred Hose and Couplings, an industrial facility; on the south by railroad tracks and by a park and residences; and on the east by residences.

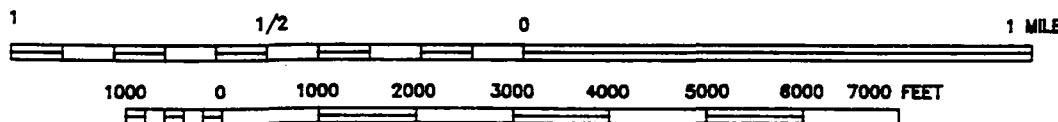
2.2 FACILITY OPERATIONS

The Kunkle facility began operation in about 1955. The facility consists of 30,000 square feet of building space and employs 27 people. It has always been a brass foundry. The facility was owned by Essex International (Essex) until about 1970 when Kunkle purchased this facility. Kunkle Foundry Company, Inc. was purchased by Keystone International of Houston, Texas in November 1991.

The facility produces brass pressure relief valves, check valves, and bearing sleeves. Most of the main building is used for production. Molds are stored in a northern building that is separate from the rest of the facility. According to the facility representative, this northern building consisting of a pattern vault and pattern shop, is believed to have been built in 1979. The western one-third of the main building was added on sometime between 1969 and 1981 (USGS 1981).



SCALE 1:24000



SCALE 1"=2,000'



SOURCE: MODIFIED FROM USGS, ANDREWS AND BIPPUS
QUADRANGLES, 1961 AND 1972

KUNKLE FOUNDRY COMPANY, INC.
ANDREWS, INDIANA

FIGURE 1
FACILITY LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.

The facility receives tin, zinc, lead, copper, and aluminum in ingot form. Since the 1970s, the facility has used induction melting furnaces to melt the metals are mixed to form a brass alloy. According to facility representatives, the facility probably used oil furnaces to melt the metals before the early 1970s.

To make cores, the facility uses binders mixed with sand and set in a pattern. The isocure is a two-part binder and catalyst used to set the core. The core is removed from the pattern and set inside a sand and clay mixture to make a mold. The mold is set with poured brass metal. Once the brass has set, the sand is shaken off in wheelabrator. The sand is either reused or stabilized in the facility's Sand Treatment Unit (SWMU 4).

Until 1992, the facility used an air set/no bake line to produce parts requiring large molds. This line was discontinued permanently last year although the idle equipment remains at the facility. This line used a chemical binder to set the sand. The sand was then shaken off the metal and disposed of, rather than reused as in the current manufacturing line.

The facility uses an underground conveyor to transport the used sand mixture consisting of clay, silica sand, and water to a silo in the Muller Room (SWMU 3). The conveyor takes the sand mixture to a silo and then the sand mixture is either dried and reused or stabilized on site in the Sand Treatment Unit (SWMU 4) and disposed off site. If the sand is reused, overhead conveyors send the sand back to the mold-forming lines. The treatment process for the sand to be disposed is a solidification/stabilization process that uses portland cement.

The facility has no underground storage tanks (UST). The facility has an aboveground storage tank that formerly held heating oil. This tank has been empty since the 1970s.

2.3 WASTE GENERATION AND MANAGEMENT

This section discusses hazardous and nonhazardous wastes generated at the Kunkle facility during foundry production. The facility's SWMUs are identified in Table 1. The facility layout, including SWMUs, is shown in Figure 2. The facility's waste streams are summarized in Table 2.

TABLE 1
SOLID WASTE MANAGEMENT UNITS

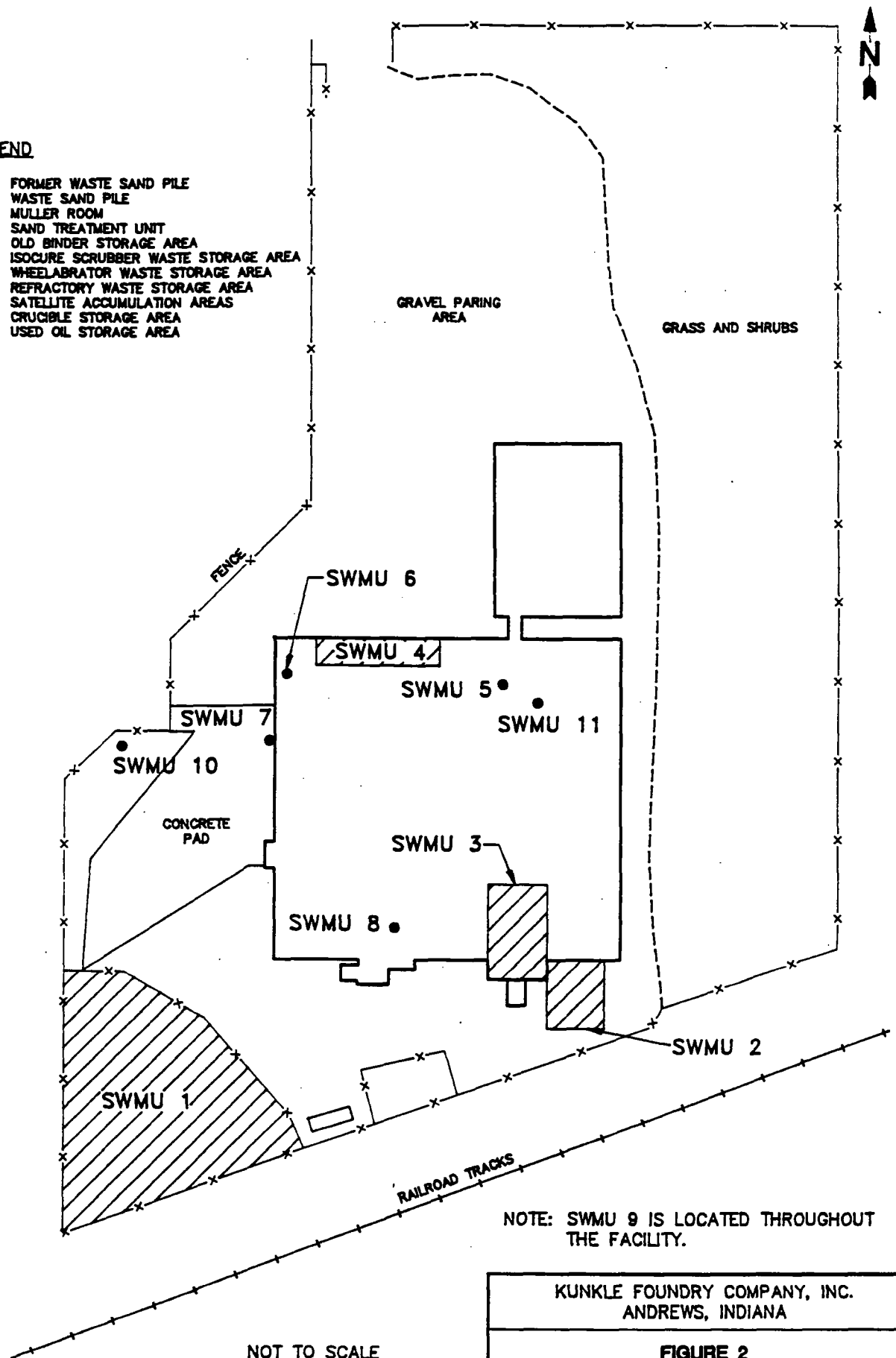
SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit^a	Status
1	Former Waste Sand Pile	Yes	Inactive, undergoing closure
2	Waste Sand Pile	No	Active
3	Muller Room	No	Active
4	Sand Treatment Unit	No	Active
5	Old Binder Storage Area	No	Active
6	Isocure Scrubber Waste Storage Area	No	Active
7	Wheelabrator Waste Storage Area	No	Active
8	Refractory Waste Storage Area	No	Active
9	Satellite Accumulation Areas	No	Active
10	Crucible Storage Area	Unknown	Active
11	Used Oil Storage Area	No	Active

Note:

^a A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.

LEGEND

- SWMU 1 FORMER WASTE SAND PILE
- SWMU 2 WASTE SAND PILE
- SWMU 3 MULLER ROOM
- SWMU 4 SAND TREATMENT UNIT
- SWMU 5 OLD BINDER STORAGE AREA
- SWMU 6 ISOCURE SCRUBBER WASTE STORAGE AREA
- SWMU 7 WHEELABRATOR WASTE STORAGE AREA
- SWMU 8 REFRACTORY WASTE STORAGE AREA
- SWMU 9 SATELLITE ACCUMULATION AREAS
- SWMU 10 CRUCIBLE STORAGE AREA
- SWMU 11 USED OIL STORAGE AREA



SOURCE: MODIFIED FROM AUGUST MACK, 1993 AND KUNKLE SKETCH
RECEIVED BY PRC ON JUNE 1, 1993

KUNKLE FOUNDRY COMPANY, INC.
ANDREWS, INDIANA

FIGURE 2
FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

TABLE 2
SOLID WASTES

<u>Waste/EPA Waste Code^a</u>	<u>Source</u>	<u>Solid Waste Management Unit</u>
Waste foundry sand/D008	Baghouse shot blast operation, ball mill, floor sweepings	1, 2, 3, 4, 7, 8, and 9
Ball mill dust/D008	Ball mill	1, 2, and 8
Furnace refractory/D008	Furnace	1, 2, and 8
Floor sweepings	Facility cleaning	1, 2, 4, and 9
Stabilized foundry sand/NA	Stabilized foundry sand, core waste, oil sand waste, shell sand waste, air set/no bake waste, stabilized crucibles	2
Core waste/NA	Used or defective cores	1, 2, and 9
Isocure scrubber waste/F001	Isocure scrubber	6 and 9
Oil sand waste/NA	used or defective cores	1, 2 and 9
Shell sand waste/NA	Core room precoated sand that is heated to form cores waste	1, 2 and 9
Air set/no bake waste/NA	Air set line	1, 2, and 9
Isocure sand waste/NA	Isocure sand waste	1, 2, and 9
Used oil/NA	Oil changes on facility's equipment	11
Old waste crucibles/Uncharacterized	Furnace room	10
Waste crucibles/D008	Furnace room	1, 2, 4, and 8

<u>Waste/EPA Waste Code^a</u>	<u>Source</u>	<u>Solid Waste Management Unit</u>
Wheelabrator dust/D008	Wheelabrator	1, 2, 4, and 7
Brass grindings/NA	Wheelabrator	7
Old binders/NA	Product no longer used at facility	5
Soil cuttings/Uncharacterized	Closure activities	1

Notes:

^a Not applicable (NA) designates nonhazardous waste.

Waste foundry sand (D008) is generated from foundry sands that are unsuitable for reuse in molds. Foundry sand that is considered waste is collected in 55-gallon drums or 1/2-cubic-yard hoppers in Satellite Accumulation Areas (SAA) (SWMU 9) around the production areas, separated from reusable sand in the Muller Room (SWMU 3), generated as baghouse dust, or collected as waste from the wheelabrator. Ball mill dust (D008) from the ball mill in the Sand Treatment Unit (SWMU 4), furnace refractory (D008) from the Refractory Waste Storage Area (SWMU 8) and floor sweepings (D008) are included within the foundry sand. Until 1988, waste foundry sand was stored at the Former Waste Sand Pile (SWMU 1) prior to disposal at the Huntington County Landfill in Indiana. In 1988, the Former Waste Sand Pile (SWMU 1) was disposed of at the Four County Landfill in Rochester, Indiana. Between 1988 and May 1992, the facility stored the waste foundry sand at the Wheelabrator Waste Storage Area (SWMU 7) for less than 90 days in roll-off boxes, prior to shipment to Adams Center Landfill in Fort Wayne, Indiana. According to generator annual reports submitted to IDEM by the facility, the rate of generation of waste foundry sand was 447,000 pounds in 1989; 342,380 pounds in 1990; and 407,460 pounds in 1991.

Since May 1992, the waste foundry sand is stabilized in the Sand Treatment Unit (SWMU 4) with the addition of portland cement. The facility generates 63,000 pounds of stabilized foundry sand every month. The stabilized foundry sand (nonhazardous) is then stored in the Waste Sand Pile (SWMU 2) prior to landfilling as a nonhazardous special waste at the City of Huntington Landfill, Huntington, Indiana.

Core waste (nonhazardous) is generated from used or nonusable cores. This waste is accumulated in 55-gallon drums in SAAs (SWMU 9) and stored at the Waste Sand Pile (SWMU 2) prior to disposal off site with the stabilized foundry sand. In 1989, core waste was generated at a rate of 1,500 pounds monthly (Kunkle 1989). The Former Waste Sand Pile (SWMU 1) stored the waste prior to 1988. Isocure scrubber waste (F001) is generated during the cleaning of the isocure. This nonroutine operation generates two to three 55-gallon drums of waste every couple of years. The waste is stored in the Isocure Scrubber Waste Storage Area (SWMU 6) for less than 90 days. The waste is then hauled off site to Industrial Fuels and Resources of South Bend, Indiana for incineration.

Oil sand waste (nonhazardous) is generated as a sand binder waste from the cores made at the facility. The waste is made of silica sand, core binder, and iron oxide. In 1989, oil sand waste was generated

at a rate of 200 pounds monthly (Kunkle 1989). This waste is accumulated in SAAs (SWMU 9), stored in the Waste Sand Pile (SWMU 2), then disposed along with the stabilized foundry sand. The Former Waste Sand Pile (SWMU 1) stored the waste prior to 1988.

Shell sand waste (nonhazardous) is generated as a sand waste from the cores made at the facility. The waste is made of silica sand and resin coated sand, cured by heat. In 1989, shell sand waste was generated at a rate of 1,500 pounds monthly (Kunkle 1989). The waste is accumulated in SAAs (SWMU 9), stored in the Waste Sand Pile (SWMU 2), and then disposed along with stabilized foundry sand. The generation rate for this waste is included in the total sand generation rate of 63,000 pounds per month. The Former Waste Sand Pile (SWMU 1) stored the waste prior to 1988.

Air set/no bake waste (nonhazardous) was generated as a sand waste from the molds made at the facility. The waste is made of silica sand, resin, and a catalyst. In 1989, air set/no bake waste was generated at a rate of 28 tons monthly (Kunkle 1989). The waste was accumulated in SAAs (SWMU 9), stored in the Waste Sand Pile (SWMU 2), and then disposed along with stabilized foundry sand. The generation rate for this waste is included in the total sand generation rate of 63,000 pounds per month. The Former Waste Sand Pile (SWMU 1) stored the waste prior to 1988.

Isocure sand waste (nonhazardous) is generated as a sand waste from cores made at the facility. The waste is made of silica sand, resin, and a catalyst. In 1989, isocure sand waste was generated at a rate of 3,000 pounds monthly (Kunkle 1989). The waste is accumulated in SAAs (SWMU 9), stored in the Waste Sand Pile (SWMU 2), then disposed along with stabilized foundry sand. The generation rate for this waste is included in the total sand generation rate of 63,000 pounds per month. The Former Waste Sand Pile (SWMU 1) stored the waste prior to 1988.

Used oil (nonhazardous) is generated at the facility through oil changes on the hydraulic molding machine, air compressors, and forklifts. The oil is generated at a rate of about six 55-gallon drums per year. The drums are stored at the Used Oil Storage Area (SWMU 11). Safety-Kleen Corporation (Safety-Kleen) of Fort Wayne, Indiana, takes the used oil off-site for recycling.

Old waste silica carbide crucibles (uncharacterized) have been stored at the facility in the Crucible Storage Area (SWMU 10) on wooden pallets for an unknown period of time. It is unknown if the

crucibles have the same composition as the currently used crucibles. The old waste crucibles are no longer useable at the facility. The facility representative was uncertain when and where the waste will be disposed.

Waste crucibles (D008) are currently broken in the ball mill, stabilized at the Sand Treatment Unit (SWMU 4), stored at the Waste Sand Pile (SWMU 2), then disposed of with the stabilized foundry sand (D008). The generation rate for this waste is included in the total sand generation rate of 63,000 pounds per month. The Former Waste Sand Pile (SWMU 1) stored the waste prior to 1988.

Wheelabrator dust (D008) is generated at the wheelabrator and stored in 1/2-cubic yard hoppers outside the facility at the Wheelabrator Waste Storage Area (SWMU 7). The waste is then handled as waste foundry sand (D008). The generation rate for this waste is included in the total sand generation rate of 63,000 pounds per month. The Former Waste Sand Pile (SWMU 1) stored the waste prior to 1988.

The brass grindings (nonhazardous) from the wheelabrator are stored at the Wheelabrator Waste Storage Area (SWMU 7) prior to being sent off site. The dust is shipped to Concorde Trading of Chicago, Illinois, for reclamation.

Old binders (nonhazardous) are no longer used at the facility. These old binders were to be used in setting the molds in the air set/no bake process. When the facility stopped using the air set/no bake process in 1992, the facility no longer had a use for the binders. The facility representative was uncertain if the old binders will be used by another foundry or disposed, but are stored in 55-gallon drums in the Old Binder Storage Area (SWMU 5) until a decision is made.

Soil cuttings (uncharacterized) have been generated at the Former Waste Sand Pile (SWMU 1) as part of the closure activities. The cuttings are stored in 55-gallon drums at the Former Waste Sand Pile (SWMU 1) awaiting disposal.

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to groundwater, surface water, air, and on-site soils at the facility.

The Former Waste Sand Pile (SWMU 1) was located in on-site soils until 1988 when it was removed. The subsurface soils at SWMU 1 have been tested as part of the closure for this area. Soil contaminated with lead (D008) will be excavated and removed as part of the closure. Soil as deep as 3.5 feet below ground surface is anticipated to be removed and stabilized from where the pile was. Groundwater immediately downgradient of this SWMU was tested and no contamination was found (August Mack Environmental, Inc. [August Mack] 1993).

2.5 REGULATORY HISTORY

This section discusses the regulatory history of the facility with regard to its permitting and compliance, and the closure of the Former Waste Sand Pile (SWMU 1).

2.5.1 Permitting History

The Kunkle facility submitted a Notification of Hazardous Waste Activity form on September 10, 1980. The facility indicated that it was a generator of D008 waste from non-specific sources (Kunkle 1980). The Kunkle facility did not submit a Part A permit application, but did store hazardous waste for more than 90 days at the facility. The Kunkle facility did not have RCRA regulated treatment or disposal units at the facility.

On February 20, 1989, Kunkle sent a letter to the IDEM Commissioner regarding nonhazardous wastes generated at the facility, to seek a special waste certification (Kunkle 1989).

The facility currently has a solid waste disposal certification for disposal of nonhazardous foundry sand at any Indiana State Permitted Sanitary Landfill (IDEM 1992e).

The facility's National Pollutant Discharge Elimination System (NPDES) permit expired on February 17, 1993 (IDEM 1988d). The facility discharges to an unnamed tributary to Loon Creek. The facility representative stated that Kunkle had applied for a renewed NPDES permit but has not received it yet.

The facility received an air permit in 1979 from the State of Indiana Air Pollution Control Board (APCB) that expired March 1, 1983 (APCB 1979). After applying for renewal of the air permit, the facility received a letter from the APCB in 1983 stating that a permit is not required by the state as long as the operation of the facility remained the same (APCB 1983). In 1991, Hoosier Environmental Services (HES) investigated the air requirements and found that the new permit would not be required as long as the operation and emissions have remained the same since 1983 (HES 1991b).

No CERCLA activities have occurred on site. According to facility representatives, no USTs exist or are known to have existed at the facility.

2.5.2 Compliance

On April 1, 1982, the Kunkle facility was inspected by Tom Linson of the Indiana State Board of Health (ISBH). The inspection reported one violation because the facility had not determined if wastes were hazardous (ISBH 1982a). On November 23, 1982, ISBH sent a letter to the facility stating that Kunkle's wastes are either nonhazardous or hazardous by characteristic only and are being legitimately used, reused, recycled, or reclaimed. The letter also states that IDEM was under the impression that the black foundry sand was only stored inside the main building, reused, and never disposed. The facility was asked to retain a special waste permit to dispose of air set sand in a landfill (ISBH 1982b).

In October 1987, RMT Inc. (RMT), identified and sampled Kunkle's waste streams to characterize them. RMT identified nine waste streams, four of which were found to be hazardous, one was not tested. These wastes are described in section 2.3 of this report. RMT found that a waste pile located southwest of the main building was hazardous for lead. This waste pile was disposed of off site (RMT 1988). This is the Former Waste Sand Pile (SWMU 1).

On March 11, 1988, Kunkle sent a letter to IDEM stating that the facility discovered that four of its waste streams were hazardous (D008), and that the waste had been stored on the property in a waste pile (IDEM 1988b). This waste pile is the Former Waste Sand Pile (SWMU 1).

On July 6, 1988, IDEM inspected the facility and found 25 violations including improper waste determinations, improper hazardous waste handling and storage, failure to keep proper paperwork, shipping hazardous waste to unpermitted landfills, and improper emergency plans and equipment. The inspector also noted that the facility is a large quantity generator/land disposal facility (IDEM 1988b). On December 13, 1988, IDEM sent a notice of violation to Kunkle regarding findings of the July 6, 1988 inspection (IDEM 1988c).

On July 6, 1989, IDEM and Kunkle received an order to achieve compliance with generator requirements. The lengthy order required Kunkle to submit a closure plan for the waste pile (IDEM 1989a). On June 21, 1989, IDEM approved the negotiated agreed order and sent the facility terms of the final order so the facility could return to compliance (IDEM 1989a).

On August 30, 1989, an EPA contractor performed a compliance evaluation inspection of the facility (PRC 1989). The inspection revealed eight violations for waste storage and record keeping. On December 1, 1989, IDEM sent a violation letter to Kunkle based on the August 30, 1989 inspection (IDEM 1989b).

On April 8, 1991, IDEM sent a notice of inadequacy (NOI) to Kunkle regarding documents submitted as directed by the terms in the agreed order. The notice also discussed findings of an inspection completed September 21, 1990 as an enforcement follow-up inspection. The inadequacies discussed included the need to characterize some wastes, posting of danger signs, labelling hazardous waste accumulation receptacles, accessibility of files, and noting deficiencies found during inspections (IDEM 1991a).

On March 16, 1992, an additional NOI was sent regarding terms required in the same order. This NOI discusses the inadequacies found in the materials submitted for the April 8, 1991 NOI and those found in an August 27, 1991 enforcement follow-up inspection. These inadequacies included waste characterization and methods of waste accumulation and storage (IDEM 1992a).

On June 30, 1992, IDEM conducted a compliance evaluation investigation. This inspection revealed five violations. Four violations dealt with a newly constructed wheelabrator waste sand storage tank located at the Wheelabrator Waste Sand Storage Area (SWMU 7), and one violation dealt with characterization of soil cuttings generated at the Former Waste Sand Pile (SWMU 1) (IDEM 1992b).

On February 4, 1993, IDEM sent a letter notifying the facility that it is in compliance with the terms of the agreed order from June 21, 1989 (IDEM 1993).

2.5.3 Waste Sand Pile Closure and Sampling Activities

As stipulated in the agreed order, Kunkle submitted the closure plan for the Former Waste Sand Pile (SWMU 1) on September 8, 1989, to IDEM (HES 1989). On April 20, 1990, the facility's closure plan was approved with some modifications (IDEM 1990b). On January 8, 1991, IDEM sent a letter to the facility stating that the approved closure plan did not address the requirements of RCRA Section 3005 (i) with regard to groundwater monitoring. IDEM strongly recommended that the facility sample and analyze groundwater as part of the closure (IDEM 1991b).

On July 19, 1990, IDEM conducted a reconnaissance at the facility as agreed at the settlement conference of July 10, 1990. IDEM collected soil samples from six locations to determine background lead levels and determine if contamination extended beyond the Former Waste Sand Pile (SWMU 1) (IDEM 1990a). No contamination was found beyond this pile.

The facility submitted a work plan for the soil and groundwater quality profile on December 24, 1991 (HES 1991a). IDEM and Kunkle met on August 18, 1992 to discuss preliminary results of the field work and to discuss the hydropunch sample locations (IDEM 1992c). According to the facility representative, IDEM agreed to the hydropunch, sample methods, and locations.

In February 1993, August Mack submitted a soil and groundwater quality sampling program report to IDEM as part of the closure for the facility. Groundwater immediately downgradient of this SWMU was tested and no contamination was found (August Mack 1993).

As part of the closure, the facility installed a treatment unit for lead contaminated soils, the Sand Treatment Unit (SWMU 4). According to IDEM, this unit is not totally enclosed since waste is manually transported from accumulation points and placed into the treatment facility for solidification. Kunkle was unwilling to connect the treatment facility to the generation points of the waste to be stabilized due to excessive cost (IDEM 1992d). The facility is considering the treatment unit a less than 90-day accumulation tank regulated under the provisions 262.34 and 268.7 the facility can treat the D008 waste without a permit. This position, which is shared by the Federal EPA, is supported in Volume 51. No. 56, pg. 10,168 of the *Federal Register* dated March 24, 1986.

The facility is continuing closure activities and expects to complete closure in 1994.

2.6 ENVIRONMENTAL SETTING

This section describes the climate; flood plain and surface water; geology and soils; and groundwater in the vicinity of the facility.

2.6.1 Climate

The climate in Huntington County is continental. The average daily temperature is 51 degrees Fahrenheit (°F). The lowest average daily temperature is about 26 °F in January. The highest average daily temperature is about 74 °F in July (USDA 1982).

The total annual precipitation for the county is about 37 inches (USDA 1982). The mean annual lake evaporation for the area is about 32 inches (NOAA 1968). The 24-hour maximum rainfall during the period of 1951 to 1974 was 5.07 inches (USDA 1982).

The prevailing wind is from the southwest (Blair 1992). The average windspeed is 12 miles per hour in winter. The average relative humidity is 60 percent in midafternoon. At dawn, the average relative humidity is 80 percent. Tornadoes and severe thunderstorms that are local and of short duration occur occasionally. Thunderstorms occur on about 41 days per year (USDA 1982).

2.6.2 Flood Plain and Surface Water

The Kunkle facility is outside of a 500-year flood plain (FEMA 1983). The nearest surface water body, Loon Creek, is located less than 0.5 mile southwest of the facility. Loon Creek drains into the Wabash River, a surface water body located about 0.5 mile northwest of the facility. The facility discharges storm water to a storm sewer which leads to an unnamed tributary to Loon Creek (IDEM 1988a).

2.6.3 Geology and Soils

According to the site investigation performed by August Mack in 1992, the southwest corner of the site is covered by foundry sandfill. Dark black, fine-grained foundry sand was encountered in 16 borings located in the southwest corner. The thickness of the foundry sand varied from 1.5 to 3.0 feet. Martinsville silt loam soils predominate under the eastern part of the site. The soil is moderately permeable and surface runoff is slow. The total thickness of the soil is approximately 60 inches of silt loam, clay loam, and sandy clay loam. Beneath the foundry sand fill or silt loam soils, glacial till deposits of Largo Formation have been encountered. Based on the silt boring logs, the glacial deposits primarily consisted of silty clay with silty sand or coarse sand layers and lenses. The thickness of the glacial deposits at the site varies from 50 to 55 feet.

The bedrock underlying the glacial till in the vicinity of the facility is early and middle Silurian in age and is reported to be limestone, dolomite, and shale.

2.6.4 Groundwater

Five groundwater monitoring wells were installed at the site in October 1991 by ATEC Environmental Consultants as part of separate activities associated with property transfer negotiations. All wells were screened in the uppermost saturated sand layer. The groundwater flow direction in the uppermost layer, based on the groundwater level measurements, is toward the southwest. The hydraulic gradient is very slight, averaging about 0.0074 feet/feet.

August Mack selected three hydropunch sampling locations immediately downgradient (southwest) from the Former Waste Sand Pile (SWMU 1). The in situ groundwater samples were collected at a depth of between 10 and 12 feet at each location. These hydropunch sampling results indicate that groundwater contamination at the Kunkle facility is not present and the groundwater immediately downgradient from the Former Waste Sand Pile (SWMU 1) has not been adversely impacted (August Mack 1993).

2.7 RECEPTORS

The Kunkle facility occupies 4 acres in a mixed-use area in Andrews, Indiana. Andrews has a population of about 1,188 (Rand McNally 1992).

The facility is bordered on the north by a farm, on the west by an industrial facility, on the south by railroad tracks followed by a park and residences, and on the east by residences. The nearest residence is located less than 0.1 mile east of the facility. The nearest school, Andrews' Elementary School, is located 1,000 feet southeast of the facility. The facility is surrounded by a chain-link fence that provides limited access during facility hours when the gate is open.

The nearest surface water body, Loon Creek, is located less than 0.5 mile southwest of the facility. Loon Creek drains into the Wabash River, a surface water body located about 0.5 mile northwest of the facility. The Wabash River is used for recreational purposes.

Groundwater is used as a source for drinking water supply. The nearest municipal wells are located 0.75 mile west-southwest of the facility. The wells serve a population of 650 (PRC 1993a).

Sensitive environments are not located on site. The nearest sensitive environments, palustrine forested wetlands, are located along Loon Creek about 0.5 mile south and west of the facility. Other sensitive environments include a palustrine forested wetland about 0.6 mile east of the facility and 1.0 mile northeast of the facility. Riverine Lower Perennial wetland is located about 0.5 mile northwest of the facility (USDI 1989).

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the twelve SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC's observations. Figure 2 shows the SWMU locations.

SWMU 1

Former Waste Sand Pile

Unit Description:	This unit was an outdoor sand pile located in the southwest corner of the facility. The unit is about an 80-foot radius quarter circle. The unit is currently fenced by a snow fence around the perimeter.
Date of Startup:	This unit began operation in about 1955.
Date of Closure:	This unit became inactive in 1988 and is currently undergoing closure.
Wastes Managed:	This unit stored waste foundry sand (D008) prior to off-site disposal.
Release Controls:	This unit had no release controls while in operation. Currently, there is a plastic cover over the area.
History of Documented Releases:	This unit has caused some lead contamination of soil immediately under and adjacent to it. The contamination is being addressed as part of the closure.
Observations:	During the VSI, this unit contained 55-gallon drums of soil cuttings on top of a plastic covering (see Photograph Nos. 1 and 2).

SWMU 2**Waste Sand Pile**

Unit Description: This outdoor unit measures about 25 feet by 25 feet and is used for storing stabilized foundry sand and other nonhazardous sands. The northern half of the unit is located on concrete, while the southern half is located on soil.

Date of Startup: This unit began operation in 1988.

Date of Closure: This unit is active.

Wastes Managed: This unit managed nonhazardous foundry sands since 1988 and stabilized foundry sand (nonhazardous) since 1992. All sands are eventually transported off site for disposal.

Release Controls: The northern half of the pile is located on a concrete pad. No other release controls are on the SWMU.

History of Documented Releases: No releases from this unit have been documented.

Observations: During the VSI, this unit contained uncovered foundry sand piled approximately 4 to 5 feet high. PRC noted black foundry sand layered above the soil all around this SWMU (see Photograph No. 3).

SWMU 3**Muller Room**

Unit Description: This unit is a room about 20 feet by 40 feet that contains a screen, a filter, and a sand pile. 55-gallon drums are kept in the Muller Room to accumulate brass scraps caught in the sandfilter screen. The floor is concrete. The Muller Room is where waste sand from manufacturing is recycled. Occasionally screened sand is placed in a

pile in the Muller Room to dry before it is returned to the boxing machine. Sand that cannot be reused is taken from the Muller Room to the Sand Treatment Unit (SWMU 4).

Date of Startup:	This unit is believed to have begun operation in about 1955.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages foundry sand that will be recycled after it is dried or waste foundry sand (D008) sent for stabilization in the Sand Treatment Unit (SWMU 4) and metals filtered from the sand to be remelted. The wastes are either reclaimed or stabilized and disposed if unusable.
Release Controls:	This unit is indoors and on a concrete floor. No floor drains are located in the area of this SWMU.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, this unit contained a pile of foundry sand being dried and about six partially filled 55-gallon drums of filtered materials. PRC noted no evidence of release (see Photograph Nos. 4 and 5).
SWMU 4	Sand Treatment Unit
Unit Description:	SWMU 4 is an indoor accumulation tank treatment unit. Core butts, waste sand with large solids, refractory wastes, and waste crucibles are broken up in the ball mill. A one-half-cubic-yard hopper accumulates dust from the ball mill. The sand treatment unit then accepts the waste from the ball mill and the ball mill dust as well as hazardous foundry sand in an accumulation tank and mixes it with

portland cement and water to create stabilized foundry sand (nonhazardous). Dust from this unit is collected in two 55-gallon drums to the west of the accumulation tank. This dust is put back in the Sand Treatment Unit. The capacity for this unit is about 5 tons of stabilized sand per hour. The unit currently treats only about 16 tons per month. The unit, which is not a totally enclosed system, consists of a ball mill, a 6-cubic-yard accumulation tank and dust conditioner that collects the dust in 55-gallon drums.

Date of Startup:	The treatment unit began operation in February 1992. It went into full operation starting May 1992.
Date of Closure:	This unit is active.
Wastes Managed:	This unit treats waste sand (D008), core butts, waste crucibles, and waste furnace refractory (D008) prepared in the ball mill. Ball mill dust (D008) and waste foundry sands (D008) are stabilized in an accumulation tank with the addition of portland cement to form nonhazardous foundry sand waste. This unit will also manage contaminated soil (D008) that will be remediated next year in the closure of the Former Waste Sand Pile (SWMU 1).
Release Controls:	This unit is located indoors and on a concrete floor. No floor drains are located in the area of this SWMU.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit was not operating during the VSI. PRC noted no evidence of release (see Photograph Nos. 6, 7, and 11).

SWMU 5**Old Binder Storage Area**

Unit Description: This unit is an indoor storage area that holds six 55-gallon drums on a cement floor.

Date of Startup: This unit began operation in approximately mid-1992.

Date of Closure: This unit is active.

Wastes Managed: This unit manages old binders (nonhazardous) for the air set/no bake line that the facility no longer uses. The ultimate disposition for the binders was uncertain at the time of the VSI.

Release Controls: This unit is located on a concrete floor and indoors. No floor drains are located in the area of this SWMU.

History of Documented Releases: No releases from this unit have been documented.

Observations: During the VSI, the unit contained five drums of oil binders, two empty drums, and one drum of compressor oil. PRC noted no evidence of release (see Photograph No. 8).

SWMU 6**Isocure Scrubber Waste Storage Area**

Unit Description: This unit is a concrete surface that holds about four 55-gallon drums of isocure scrubber waste, which is generated in the isocure scrubber operation, then emptied from the isocure scrubber in an infrequent cleaning operation. The unit is located indoors in the northwest corner of the main building and stored for less than 90 days.

Date of Startup: This unit began operation in about 1978.

Date of Closure:	This unit is active.
Wastes Managed:	This unit manages 55-gallon drums of isocure scrubber waste (F001).
Release Controls:	This unit is indoors and on a concrete surface. No floor drains are located in the area of this SWMU.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC noted that this unit was not managing waste during the VSI. PRC also observed the generation area and noted drippage on the sides of the steel drum which is part of the unit, but no release to media (see Photograph Nos. 7 and 9).
SWMU 7	Wheelabrator Waste Storage Area
Unit Description:	This unit is located outdoors on the west side of the facility. It consists of two one-half-cubic-yard metal hoppers accumulating waste. The unit also includes a concrete pad directly west of the hoppers that stored waste foundry sand (D008) for less than 90 days in a roll-off box.
Date of Startup:	This unit began operation in about 1955.
Date of Closure:	This unit is active.
Wastes Managed:	This unit is used to store wheelabrator dust (D008) for less than 90 days prior to on-site treatment at the Sand Treatment Unit (SWMU 4) and ultimately off-site disposal. From 1988 to 1992, the roll-off box on the concrete pad contained waste foundry sand (D008).

Release Controls:	This unit is on a concrete pad. The waste is covered.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained two one-half cubic-yard hoppers during the VSI. PRC noted no evidence of release (see Photograph No. 10).
 SWMU 8	 Refractory Waste Storage Area
Unit Description:	This unit is an indoor area about 3 feet by 5 feet that contains a metal hopper. The area has a concrete floor and is located in the furnace room.
Date of Startup:	This unit began operation in about 1988.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste furnace refractory (D008) before breaking up in the ball mill, treatment in the Sand Treatment Unit (SWMU 4), storage in the Waste Sand Pile (SWMU 2), and finally to disposal off-site.
Release Controls:	This unit is indoors and on a concrete floor. The unit is covered. No floor drains are located in the area of this SWMU.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained a covered refractory waste hopper during the VSI. PRC noted no evidence of release (see Photograph Nos. 15 and 16).

SWMU 9**Satellite Accumulation Areas**

Unit Description: SWMU 9 includes several waste accumulation areas located throughout the main building. The building floor is concrete. 55-gallon drums and 1/2-cubic-yard hoppers are used for satellite accumulation.

Date of Startup: This unit probably began operation in 1955.

Date of Closure: This unit is active.

Wastes Managed: This unit manages core waste and nonhazardous sands (nonhazardous), floor sweepings and waste sands (D008), and isocure scrubber waste (F001). The core waste is disposed off site. The floor sweepings (D008) are stabilized on site at the Sand Treatment Unit (SWMU 4). Stabilized and nonhazardous sands and core waste are stored in the Waste Sand Pile (SWMU 2) prior to disposal off site. The isocure scrubber waste is sent off site for incineration.

Release Controls: This unit is indoors and on a concrete floor. No floor drains are located in the area of this SWMU.

History of Documented Releases: No releases from this unit have been documented.

Observations: During the VSI, this unit contained a 55-gallon drum about one-third full of core waste. PRC noted no evidence of release (see Photograph No. 12).

SWMU 10**Crucible Storage Area**

Unit Description: This unit is an outdoor area measuring about 15 feet by 15 feet. The area is gravel, unlined, and uncovered.

Date of Startup: This unit began operation at an unknown time.

Date of Closure: This unit is active.

Wastes Managed: This unit manages waste crucibles with an unknown waste classification. The facility was uncertain of the ultimate disposition of this waste.

Release Controls: This unit has no known release controls other than its location away from storm drains.

History of Documented Releases: No releases from this unit have been documented.

Observations: During the VSI, the unit contained approximately ten large crucibles and six broken smaller pieces located on wooden skids. PRC noted no evidence of release (see Photograph No. 13).

SWMU 11**Used Oil Storage Area**

Unit Description: This unit is an indoor area about 5.0 feet by 7.5 feet in size, located on concrete. It can hold about six 55-gallon drums.

Date of Startup: This unit began operation sometime before 1986.

Date of Closure: This unit is active.

Wastes Managed: This unit is used to store used oil (nonhazardous) before it is taken off site for reclamation.

Release Controls: This unit is indoors and on a sound, drainless concrete floor.

History of Documented Releases: No releases from this unit have been documented.

Observations: This unit contained six covered 55-gallon drums of used oil during the VSI. PRC noted no evidence of release (see Photograph No. 14).

4.0 AREAS OF CONCERN

PRC did not identify any AOCs during the PA/VSI.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified twelve SWMUs and no AOCs at the Kunkle facility. Background information on the facility's location; operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. Following are PRC's conclusions and recommendations for each SWMU. Table 3, located at the end of this section, summarizes the SWMUs at the facility and the recommended further actions.

SWMU 1 Former Waste Sand Pile

Conclusions: The Former Waste Sand Pile is currently undergoing RCRA closure. The unit has been inactive since 1988 when the pile was removed and disposed of off site. The unit is currently covered with plastic. The groundwater has been tested and showed no release from this SWMU. The unit has released lead (D008) to on-site soils. Because this SWMU is covered, the potential for release to surface water and air from this SWMU is low. The potential for release to air is low.

Recommendations: PRC recommends that the facility continue closure activities with oversight by IDEM.

SWMU 2 Waste Sand Pile

Conclusions: The Waste Sand Pile has never managed hazardous waste. The pile handles treated and nontreated nonhazardous foundry sand. The pile is uncovered, half on a concrete pad, and half on soil. The pile does not handle hazardous waste, however, waste sands which may contain hazardous constituents used in the brass foundry process such as zinc and copper, lead and tin, etc., are

handled at this SWMU. Because the pile is directly on on-site soil, this storage method constitutes an observed release. The potential for release to groundwater, surface water, and air from this SWMU is low.

Recommendations: PRC recommends that the facility install or obtain some containment structure for the sand pile. This containment could be a concrete pad, roll-off boxes, or a metal container that could hold sand and prevent it from mixing with on-site soils. In addition, the facility may need to analyze the surficial soils beneath this pile to show that the soil has not been contaminated with the hazardous constituents.

SWMU 3 Muller Room

Conclusions: Sand from the facility production areas is sent to this unit to be prepared for reuse or treatment. Sand is filtered so that the metals can be melted. The sand is then piled and dried. Waste foundry sand is taken from the Muller Room for treatment in the sand treatment unit. The drying sand rests on the concrete floor. PRC did not note any floor cracks where the pile is located. No floor drains are located in the area of this SWMU. The potential for release to groundwater, surface water, air, and on-site soils from this SWMU is low.

Recommendations: PRC recommends no further action for this SWMU at this time.

SWMU 4 Sand Treatment Unit

Conclusions: IDEM considers this unit an accumulation tank treatment process not requiring a RCRA permit. The unit performs solidification and stabilization of the waste sands (D008) with the addition of portland cement to make the waste nonhazardous. The treatment wastes are then landfilled in a sanitary landfill as a special waste. The unit is located indoors and on concrete. No floor

drains are located in the area of this SWMU. The potential for release to groundwater, surface water, air, and on-site soils from this SWMU is low.

Recommendations: PRC recommends no further action for this SWMU at this time.

SWMU 5 Old Binder Storage Area

Conclusions: The old binders are product material the facility no longer uses. Currently, the facility has no plans as to how or when the binders will be disposed of. The covered drums are located indoors and on concrete. No floor drains are located in the area of this SWMU. The potential for release to groundwater, surface water, air, and on-site soils from this SWMU is low.

Recommendations: PRC recommends that the facility make plans to sell or dispose of the binders.

SWMU 6 Isocure Scrubber Waste Storage Area

Conclusions: This unit is located indoors and on concrete. The isocure scrubber waste is stored less than 90 days in closed 55-gallon drums. No floor drains are located in the area of this SWMU. The potential for release to groundwater, surface water, air, and on-site soils from this SWMU is low.

Recommendations: PRC recommends no further action for this SWMU.

SWMU 7 Wheelabrator Waste Storage Area

Conclusions: This unit is for the storage of wheelabrator dust (D008) in hoppers and for the storage of brass grindings that are sent off site for reclaiming. The hoppers are covered. In addition, the area was used from 1988 to 1992 to contain 20 cubic yard roll-off boxes for waste foundry sand (D008) prior to disposal. The potential for release to groundwater, surface water, air, and on-site soils

from this SWMU is low. The roll-off boxes are located on a concrete pad away from storm drains and surface water.

Recommendations: PRC recommends no further action for this SWMU.

SWMU 8 Refractory Waste Storage Area

Conclusions: The refractory waste (D008) is located in a covered hopper, indoors, on concrete. No floor drains are located in the area of this SWMU. The potential for release to groundwater, surface water, air, and on-site soils from this SWMU is low.

Recommendations: PRC recommends no further action for this SWMU.

SWMU 9 Satellite Accumulation Areas

Conclusions: The unit consists of various indoor locations where wastes are accumulated in metal containers on a concrete floor. The wastes can be floor sweepings and other hazardous sands (D008) or core waste and nonhazardous sands (nonhazardous). The waste remains in the SAAs until enough has accumulated it is then moved to other SWMUs once enough has accumulated. No floor drains are located in the area of this SWMU. The potential for release to groundwater, surface water, air, and on-site soils from this SWMU is low.

Recommendations: PRC recommends no further action for this SWMU.

SWMU 10

Crucible Storage Area

Conclusions:

This area is located outdoors, in a gravel area next to the parking lot. Other miscellaneous non-waste items are stored in this area. According to the facility representative, the crucibles have been stored in this location since before the mid-1980s when he came to the facility. The waste crucibles currently used at the facility are considered hazardous; therefore, the old crucibles may be hazardous as well. Precipitation and run-off from the crucibles may carry contaminants into the on-site soil. The potential for release to on-site soil and groundwater from this SWMU is low to moderate. The potential for release to air and surface water from this SWMU is low.

Recommendations:

PRC recommends that the facility determine if the crucibles are considered hazardous. The crucibles should be disposed of appropriately and the area RCRA closed, if the crucibles are determined to be hazardous.

SWMU 11

Used Oil Storage Area

Conclusions:

This unit stores used oil (nonhazardous) in covered 55-gallon drums located indoors on concrete. No floor drains are located in the area of this SWMU. The potential for release to groundwater, surface water, air, and on-site soils from this SWMU is low.

Recommendations:

PRC recommends no further action for this SWMU.

RELEASED
DATE 8/22/06
RIN #
INITIALS WV

TABLE 3
SWMU AND AOC SUMMARY

	<u>SWMU</u>	<u>Dates of Operation</u>	<u>Evidence of Release</u>	<u>Recommended Further Action</u>
1.	Former Waste Sand Pile	1955 to 1988	Subsurface soil samples show contamination	Continue closure activities
2.	Waste Sand Pile	1988 to present	Observed release	Provide secondary containment
3.	Muller Room	1955 to present	None	None
4.	Sand Treatment Unit	Ball mill- 1978; rest of unit- 1992 to present	None	None
5.	Old Binder Storage Area	1992 to present	None	Sell or dispose of the binders
6.	Isocure Scrubber Waste Storage Area	1978 to present	None	None
7.	Wheelabrator Waste Storage Area	1955 to present	None	None
8.	Refractory Waste Storage Area	1988 to present	None	None
9.	Satellite Accumulation Areas	1955 to present	None	None
10.	Crucible Storage Area	Unknown to present	None	Characterize and dispose of crucibles; RCRA Closure if hazardous
11.	Used Oil Storage Area	Before 1986 to present	None	None

REFERENCES

- August Mack Environmental, Inc. (August Mack). 1993. "Soil and Groundwater Quality Sampling Program, RCRA Waste Pile Closure." February 26.
- Blair, Frank E. 1992. The Weather Almanac. 6th Edition. Gail Research, Inc.
- Federal Emergency Management Agency (FEMA). 1983. Flood Insurance Rate Map, Huntington County, Indiana Unincorporated Areas, Community Panel Number 180438 9975 C. July 18.
- Hoosier Environmental Services (HES). 1989. Letter from Geoffrey Glanders to Thomas Linson, IDEM. Regarding Waste Closure Plan Submitted as Agreed in Cause No. H-077. September 8.
- HES. 1991a. "Work Plan, Soil and Groundwater Quality Profile Sampling Program." December 24.
- HES. 1991b. Letter from Gary Weinreb and Geoffrey Glanders to Bill Newell, Kunkle. Regarding Kunkle Not Required to Hold a Permit to Operate as Long as Operations Have Not Changed. April 16.
- Indiana Department of Natural Resources (IDNR). 1989. Quaternary Geologic Map of Indiana.
- Indiana Department of Environmental Management (IDEM). 1988a. National Pollutant Discharge Elimination System Permit, Permit No. IN 0004634. February 17.
- IDEM. 1988b. Office Memorandum from Stephen Hunter through Jeff Blankenberger to Kunkle RCRA File. Regarding July 6, 1988 Inspection of Kunkle. September 23.
- IDEM. 1988c. Notice of Violation, Cause No. H-077 for Kunkle. December 13.
- IDEM. 1988d. Authorization to Discharge Under the National Pollutant Discharge Elimination System. Expires February 17, 1993. Issued February 17.
- IDEM. 1989a. Letter from Bruce Palin to William Newell, Kunkle. Regarding Adoption of Agreed Order H-077. July 6.
- IDEM. 1989b. From Bruce Palin to Kevin Steele, Kunkle. Violation Letter No. VL-10297. December 1.
- IDEM. 1990a. Memorandum from Robert Martin to Jane Browning. Regarding Kunkle Site Reconnaissance and Analysis of Soil Samples. September 6.
- IDEM. 1990b. Letter from Bruce Palin to Kevin Steele, Kunkle. Regarding Approval of Modified Closure Plan. April 20.
- IDEM. 1991a. Letter from Dennis Zawodni to William Newell, Kunkle. Regarding Inadequacy For Compliance with H-077. April 8.

- IDEM. 1991b. Letter from Victor Windle to Kevin Steel, Kunkle. Regarding Kunkle Closure Not Addressing Groundwater Monitoring. January 8.
- IDEM. 1992a. Letter from Dennis Zawodni to William Newell, Kunkle. Regarding Inadequacy For Compliance with H-077. March 16.
- IDEM. 1992b. Letter from James Hunt to Kevin Steel, Kunkle. Regarding Compliance Evaluation Inspection at Kunkle. July 29.
- IDEM. 1992c. Memorandum from Robert Martin copied to Fayola Wright, EPA Region 5. Regarding Kunkle Meeting. August 18.
- IDEM. 1992d. Letter from Pamela O'Rourke to William Newell, Kunkle. Regarding IDEM's Position on Kunkle's Treatment Unit Requirements. June 18.
- IDEM. 1992e. Solid Waste Disposal Certification No. 20306. Expires March 31, 1997. Issued March 18.
- IDEM. 1993. Letter from Rosemary Cantwell to William Newell, Kunkle. Regarding Kunkle Achieving Compliance with the June 21, 1989 Agreed Order. February 4.
- Indiana State Board of Health (ISBH). 1982a. Letter from James Hunt to Wally Kristy, Kunkle. Regarding Results of April 1, 1982 RCRA Generator Inspection. May 3.
- ISBH. 1982b. Letter from James Hunt to Wally Kristy, Kunkle. Regarding the Facility Not Regulated Under RCRA. November 23.
- Kunkle Foundry Company, Inc. (Kunkle). 1980. Notification of Hazardous Waste Activity. September 10.
- Kunkle. 1989. Letter from Kevin Steele to IDEM Commissioner. Regarding List of Nonhazardous Waste Streams at the Facility. February 20.
- National Atmospheric and Oceanic Administration (NOAA). 1968. Climatic Atlas of the United States.
- PRC Environmental Management, Inc. (PRC). 1989. "Draft Report, RCRA Inspections for Various Sites in Indiana. Compliance Evaluation Inspection of Kunkle Foundry, Anderson, Indiana". September 20.
- Rand McNally. 1992. U.S. Road Atlas. Rand McNally and Company. Chicago, Illinois.
- RMT Inc. (RMT). 1988. "Report Characterizing Wastes at Kunkle, Title Undetermined." February 25.
- State of Indiana Air Pollution Control Board (APCB). 1979. Operation Permit, Permit No. 35-03-83-0108. Expires March 1, 1983. Issued June 12.

APCB. 1983. Letter from Harry Williams to Wallace Kristy, Kunkle. Regarding Kunkle Not Being Required to Have Permit to Operate. June 20.

U.S. Department of Agriculture (USDA). 1982. "Soil Survey of Huntington County, Indiana." December.

U.S. Department of Interior (USDI). 1989. U.S. Fish and Wildlife Service National Wetlands Inventory. Andrews, Indiana Quadrangle.

U.S. Geological Survey (USGS). 1981. Topographic Map of Andrews, Indiana, Quadrangle. 7.5 Minute Series. 1969. Photorevised 1981.

USGS. 1972. Topographic Map of Bippus, Indiana, Quadrangle. 7.5 Minute Series.

APPENDIX A
EPA PRELIMINARY ASSESSMENT FORM 2070-12
(1 Page)



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE IN 02 SITE NUMBER IND 064 708 845

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Kunkle Foundry Company, Inc.	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER 407 California Avenue				
03 CITY Andrews	04 STATE IN	05 ZIP CODE 46702	06 COUNTY Huntington	07 COUNTY CODE	08 CONG DIST
09 COORDINATES: LATITUDE 40° 31' 52" N		LONGITUDE 85° 39' 27" W			
10 DIRECTIONS TO SITE (Starting from nearest public road) U.S. Route 24 to State Route 105 South to California Avenue East to the facility.					

III. RESPONSIBLE PARTIES

01 OWNER (If known) Kunkle Foundry Company, Inc.	02 STREET (Business, mailing, residential) 8222 Bluffton Road				
03 CITY Fort Wayne	04 STATE IN	05 ZIP CODE 46804	06 TELEPHONE NUMBER 219/786-3496		
07 OPERATOR (If known and different from owner)		08 STREET (Business, mailing, residential)			
09 CITY	10 STATE IN	11 ZIP CODE	12 TELEPHONE NUMBER		
13 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL: _____ (Agency Name) <input type="checkbox"/> F. OTHER _____ (Specify) <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> G. UNKNOWN					
14. OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply) <input checked="" type="checkbox"/> A. RCRA 3010 DATE RECEIVED: 09 /10 /80 <input type="checkbox"/> B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / <input type="checkbox"/> C. NONE MONTH DAY YEAR MONTH DAY YEAR					

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 06/01/93 <input type="checkbox"/> NO		BY (Check all that apply) <input type="checkbox"/> A. EPA <input checked="" type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER: _____ (Specify) CONTRACTOR NAME(S): PRC Environmental Management, Inc.	
02 SITE STATUS (Check one) <input checked="" type="checkbox"/> A. ACTIVE <input type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN	03 YEARS OF OPERATION 1955 1995 BEGINNING YEAR ENDING YEAR <input type="checkbox"/> UNKNOWN		
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED Foundry sands (D008), isocure scrubber waste (F001), and other solid wastes (D008)			
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION Kunkle had an uncovered waste pile containing D008 waste at the facility until it was removed and disposed of off site in 1988. The contaminated soils below the location of the pile will be excavated as part of closure activities.			

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.) <input checked="" type="checkbox"/> A. HIGH (Inspection required promptly) <input type="checkbox"/> B. MEDIUM (Inspection required) <input type="checkbox"/> C. LOW (Inspect on time-available basis) <input type="checkbox"/> D. NONE (No further action needed; complete current disposition form)			
---	--	--	--

VI. INFORMATION AVAILABLE FROM

01 CONTACT Kevin Picard	02 OF (Agency/Organization) U.S. EPA		03 TELEPHONE NUMBER (312) 886-4448	
04 PERSON RESPONSIBLE FOR ASSESSMENT Patrick McGowan	05 AGENCY	06 ORGANIZATION PRC	07 TELEPHONE NUMBER (708) 255-4166	08 DATE July 30, 1993 MONTH DAY YEAR

APPENDIX B
VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS
(9 Pages)

VISUAL SITE INSPECTION SUMMARY

**Kunkle Foundry Company, Inc.
407 California Avenue
Andrews, IN 46702
IND 064 708 845**

Date: June 1, 1993

Primary Facility Representative: Kevin Steel
Representative Telephone No.: 219/786-3496

Inspection Team: Ron Baker, PRC Environmental Management, Inc. (PRC),
Patrick McGowan, PRC

Photographer: Ron Baker, PRC

Weather Conditions: Clear, Sunny, about 60 °F

Summary of Activities: The visual site inspection (VSI) began at 9:00 a.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. The facility representative then discussed the facility's past and current operations, solid wastes generated, and release history. The facility representative provided the inspection team with copies of requested documents.

The VSI tour began at 10:45 a.m. with a tour of the Core Room, Muller Room, and Furnace Room. In these rooms, the Satellite Accumulation Areas (SWMU 9) were inspected and photographed, as were the Muller Room (SWMU 3), and the Refractory Waste Storage Area (SWMU 8). The tour then proceeded outside to inspect the Former Waste Sand Pile and Waste Sand Pile (SWMU 1 and 2). The tour included observation of the Crucible Storage Area (SWMU 10) and the Wheelabrator Waste Storage Area (SWMU 7) prior to returning to the main building. The remainder of the SWMUs were then inspected and photographed.

The tour concluded at noon, after which the inspection team held an exit meeting with the facility representative. The VSI was completed and the inspection team left the facility at 12:50 p.m.



Photograph No. 1

Orientation: West

Location: SWMU 1

Date: 06/01/93

Description: This photograph shows the northern part of the Former Waste Sand Pile. The location is covered, fenced, and 55-gallon drums of soil cuttings are on top of the location.



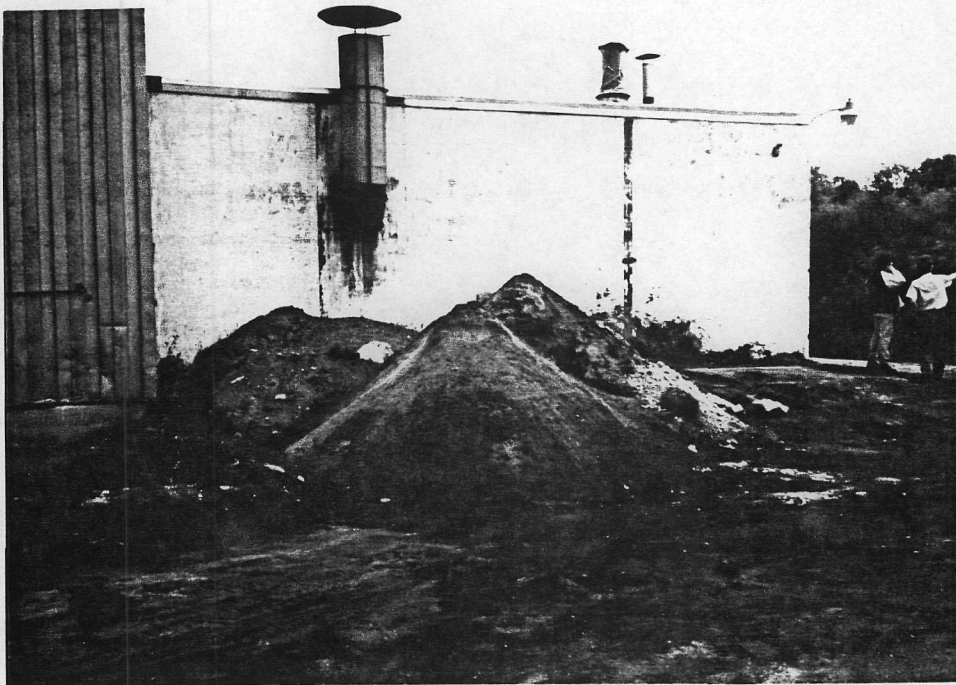
Photograph No. 2

Orientation: West

Location: SWMU 1

Date: 06/01/93

Description: This photograph shows the southern part of the Former Waste Sand Pile. The aboveground storage tank formerly held oil, but is currently empty. Note that the aboveground tank is not resting on the ground.



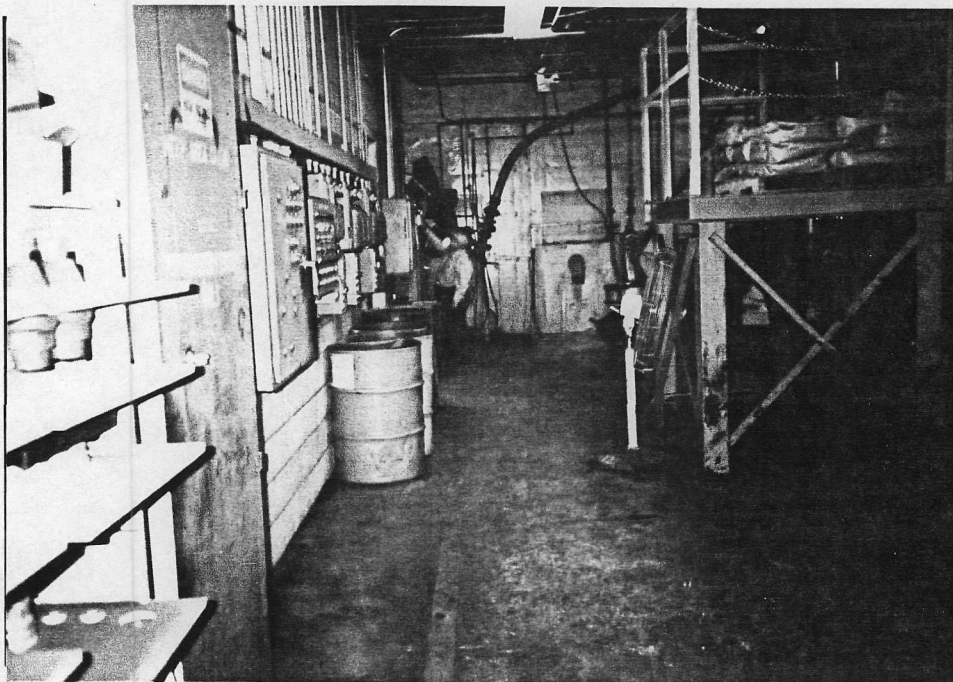
Photograph No. 3

Orientation: Northeast

Location: SWMU 2

Date: 06/01/93

Description: This photograph shows the Waste Sand Pile. Hazardous sand which has been stabilized and rendered nonhazardous as well as other sands are stored here prior to disposal. Concrete is the base for the back half of the pile, while soil is the base for the front half of the pile.



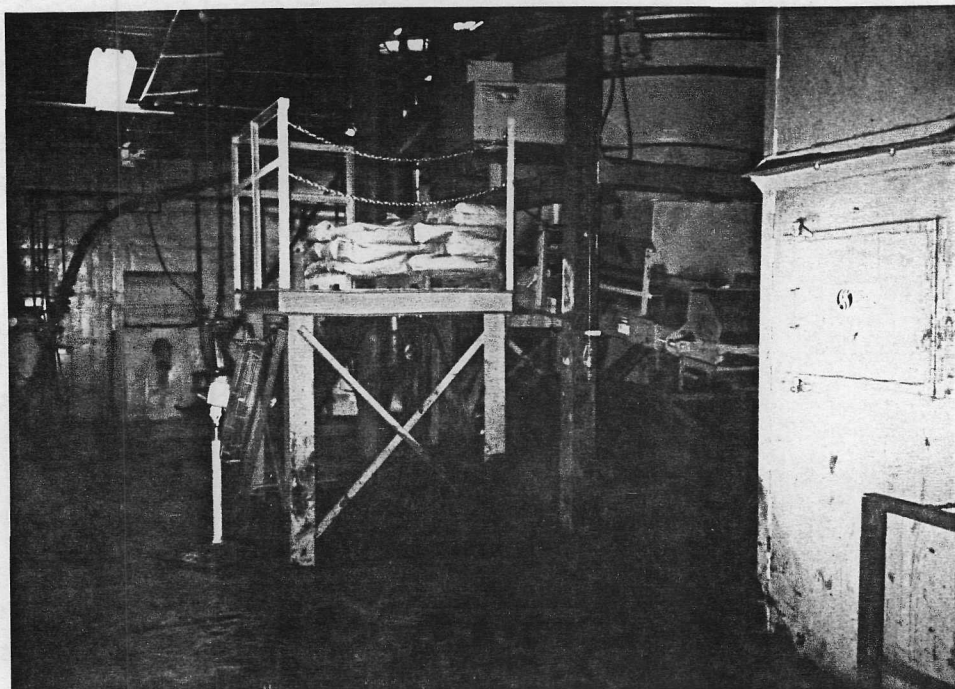
Photograph No. 4

Orientation: South

Location: SWMU 3

Date: 06/01/93

Description: This photograph shows the Sand Storage Area in the Muller Room. The 55-gallon drum holds the muller scrap that is filtered from the sand. The metal and sand are reused while the unusable sand is disposed.



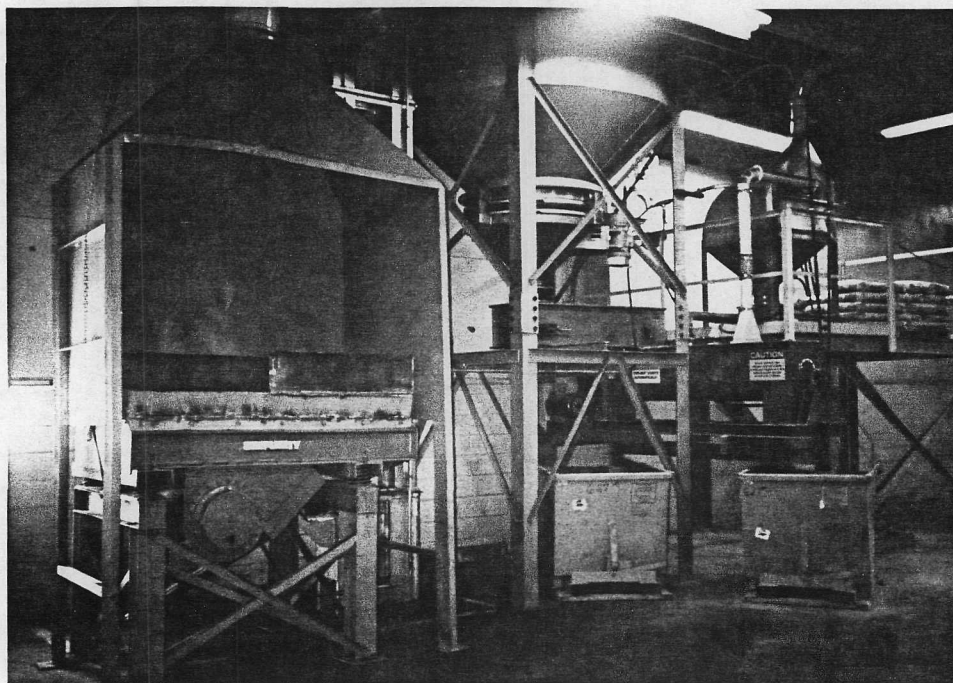
Photograph No. 5

Orientation: South

Location: SWMU 3

Date: 06/01/93

Description: This photograph shows the Sand Storage Area in the Muller Room. The foundry sand shown is reused after being dried on the concrete floor.



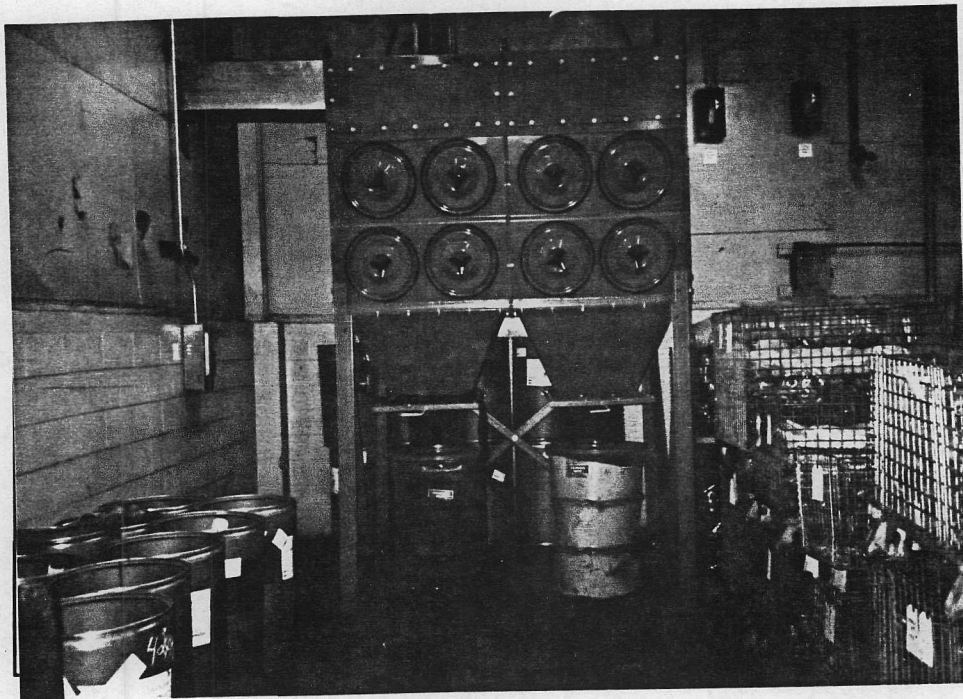
Photograph No. 6

Orientation: Northeast

Location: SWMU 4

Date: 06/01/93

Description: This photograph shows the Sand Treatment Unit.



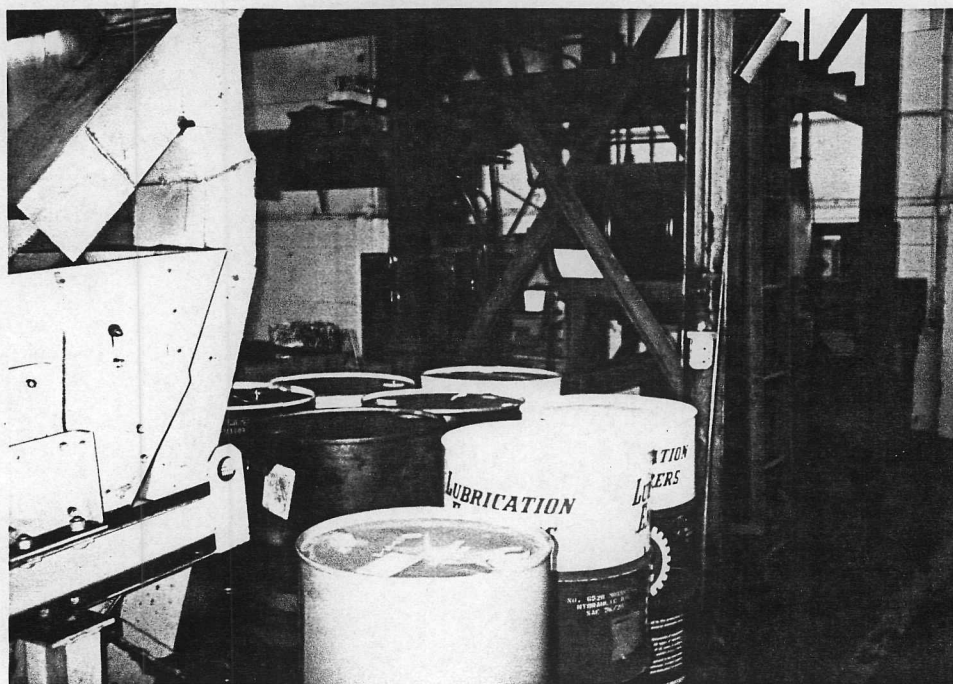
Photograph No. 7

Orientation: North

Location: SWMUs 4 & 6

Date: 06/01/93

Description: This photograph shows two 55-gallon drums being prepared for return to the Sand Treatment Unit (SWMU 4). The blue unit collects the dust from the Sand Treatment Unit. Drum storage for isocure scrub waste is shown in the front of the photograph.



Photograph No. 8

Orientation: Northwest

Location: SWMU 5

Date: 06/01/93

Description: This photograph shows 55-gallon drums of old binders that for which the facility has no use. These drums are located next to the old air set line. Five drums contain old binders, one contains compressor oil, and two are empty.



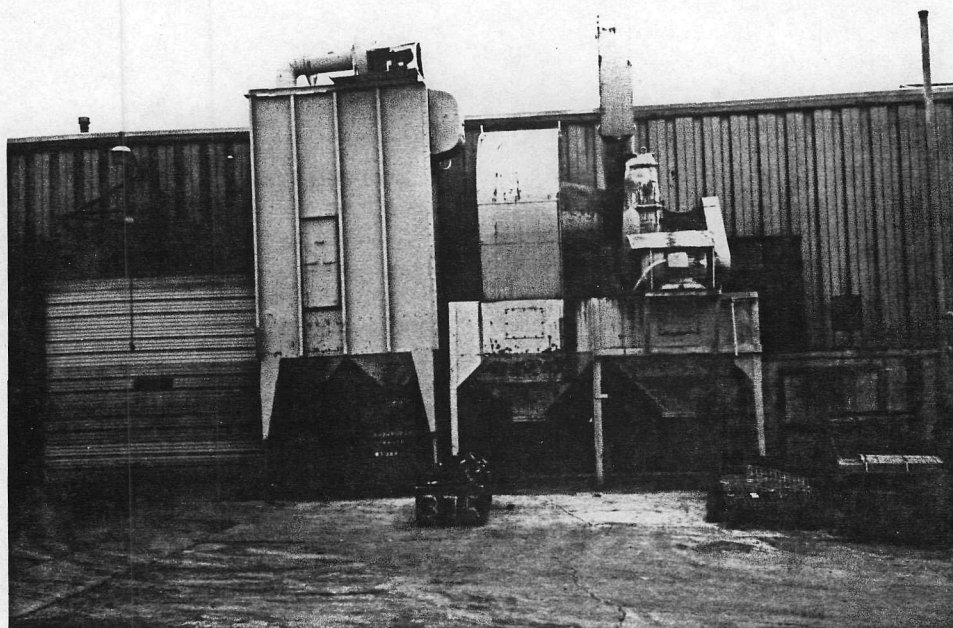
Photograph No. 9

Orientation: Southwest

Location: SWMU 6

Date: 06/01/93

Description: This photograph shows the isocure scrubber unit. Cleanout from this unit goes to the Isocure Scrubber Waste Storage Area in front of dust unit from Sand Treatment Unit (SWMU 4) (see Photograph No. 7).



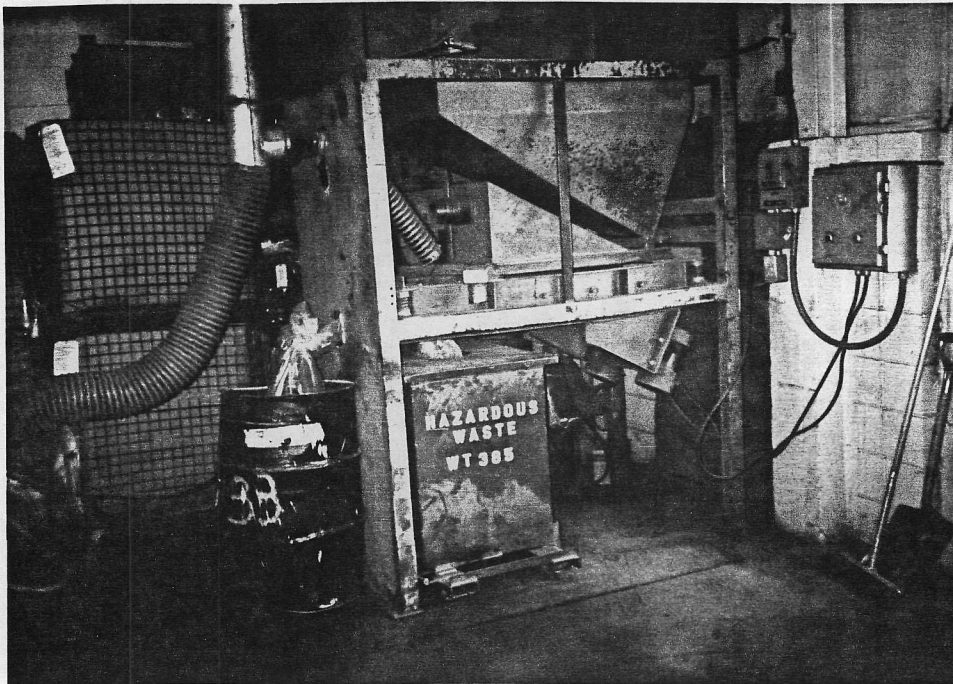
Photograph No. 10

Orientation: East

Location: SWMU 7

Date: 06/01/93

Description: This photograph shows the wheelabrator waste being collected in two bed hoppers. The two units on the right collect brass grindings that are reclaimed.



Photograph No. 11

Orientation: Northwest

Description: This photograph shows the Ball Mill Dust Storage Area.

Location: SWMU 4

Date: 06/01/93



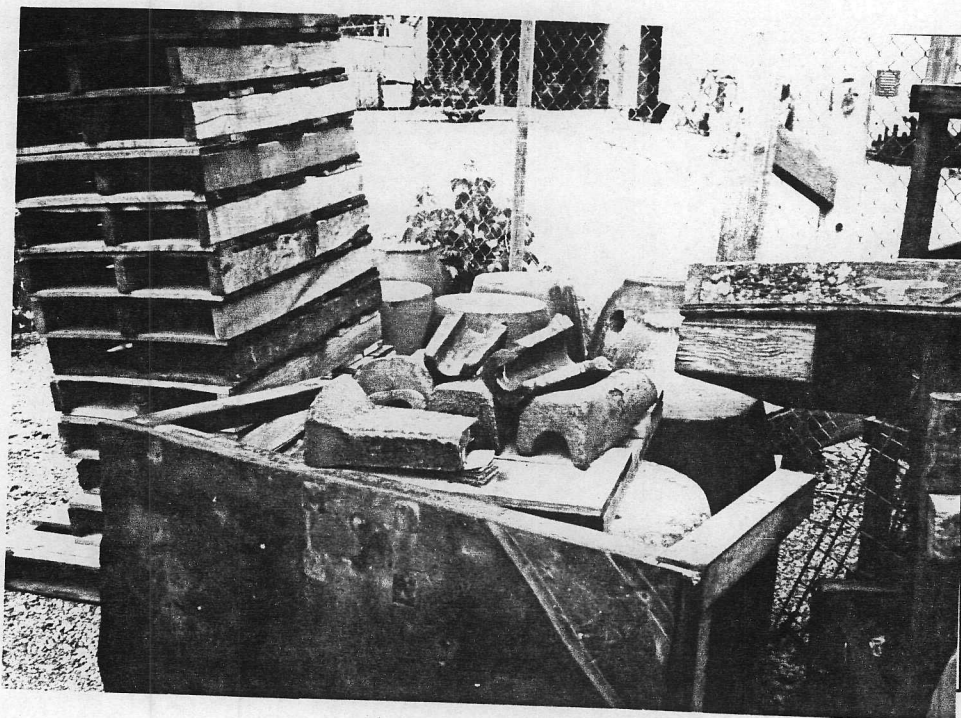
Photograph No. 12

Orientation: South

Description: This photograph shows an accumulation of core wastes in the core room. Core butts and floor sweepings are accumulated in various areas of the facility.

Location: SWMU 9

Date: 06/01/93



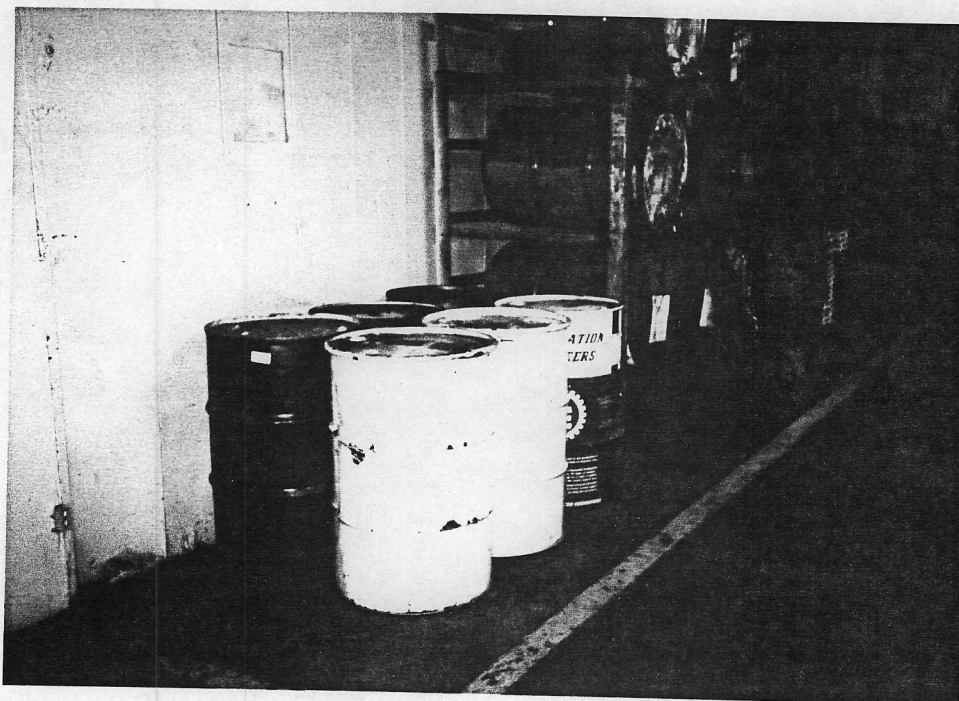
Photograph No. 13

Orientation: Northwest

Location: SWMU 10

Date: 06/01/93

Description: This photograph shows old crucibles that have been stored outside for an undetermined amount of time.



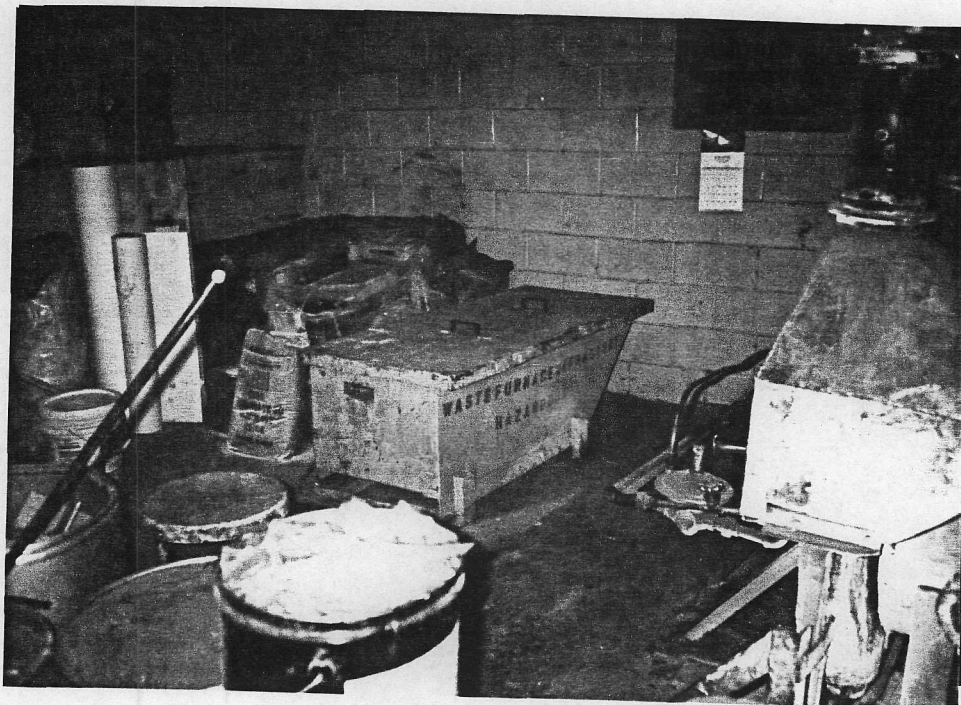
Photograph No. 14

Orientation: Southeast

Location: SWMU 11

Date: 06/01/93

Description: This photograph shows the Used Oil Storage Area. Six drums of used oil are located here next to product oil.



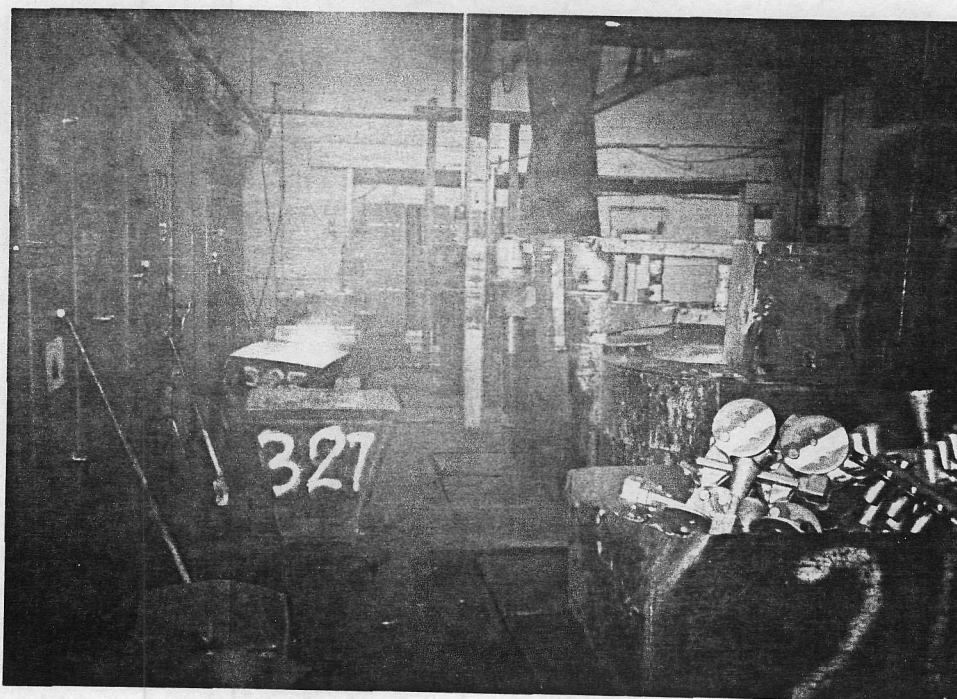
Photograph No. 15

Orientation: Northwest

Description: This photograph shows the Refractory Waste Storage Area.

Location: SWMU 8

Date: 06/01/93



Photograph No. 16

Orientation: West

Description: This photograph shows the skimmings from the molten bronze that are unusable. These skimmings are reclaimed or stabilized and disposed with the refractory waste.

Location: SWMU 8

Date: 06/01/93

APPENDIX C
VISUAL SITE INSPECTION FIELD NOTES
(15 Sheets)

Kunkle Foundry 6/1/93
~55° sunny

900 PRX Ron Baker
Patrick McGowan
Kunkle Foundry
Kevin Steele

Badu Foundry

1 run castings only no machining
pressure relief valves check valves bearing sleeves

Jobs

wastecores + system sand
shell coalbox + oil sand cores

green sand

induction melting furnaces

grinding

Silica sand

clay binder

core binders

metal in ingot forms

Galloys tin z. & lead copper

aluminum

netting furnaces

Kunkle products

about 1970 Kunkle purchased

Essex owned foundry prior

55-56 building built

always brass foundry

1 ental 92 [Air set line - no back chm. reaction
chemical mixed casting "

22 hourly

3 super

2 OMT 15

27

up to 30 people one shift

900 melted metal - 400 per above here

3 induction furnaces mid 70s

Prior oil furnaces

heating oil AST

Natural gas now

1 AST for gasoline

No known USTs ever

Pindora cone crushers

after mold is set

Shake out sand reused

wheelabrator shot blast

CUT

ground

grindings ore sold

isocure 2 part binder + catalyst sets core

Waste sand - shot blast operation lead

Ball mill - dust & sand Refractory lead

Baghouse - wheelabrator - lead
conco. de
EMET

Refractory - sand - filter paper 2008

Floor sweepings - lead 2008

isocure scrubber - coal box cleaner acidifier
cleaned out & redone
every 1-2 years.

4 special

oil sand waste - on used railroad

Delft sand, Huntington C. by landfill
Andrus II, Harts Run, Huntington IN

isocore sand waste

broken core & mix
Never used

City of Huntington City landfill
Huntington IN

Shell sand waste

broken core Reactor what
Huntington C. by landfill

Air set/no take

older waste large molds
Huntington C. by landfill

Waste oil hydraulic molding machines

air compressor trucks

portland cement added at 20% mix to that

waste sand from Wheelabrator

baghouse

refractory

ball mill

Floor sweepings

Huntington

City

landfill after

tree cut

Treatment system started Feb '92

August Mack Hosier Environmental

Indianapolis IN

built for closure Area & day today
generator

Treatment is solidification/stabilization

TCLP tests were taken on the sand

DOOS in → Sp waste out

designed for

5 tons/day for clean closure

~ 2 x 2 hrs/week run

16 ton/month untreated

Not enclosed

Accumulation tank
dust condition

Closure status - ready for cleanup

Geo indicator has been sampled, it is

ready for bringing in soil & treating

6-7 permanent wells

Wastes Four County landfill in Rochester, IN
Delaware center landfill 88 sent sand to.

until May of '92

New Haven & Fort Wayne 4636 AC Road
Fort Wayne IN

4 Acres of land
~ 30,000 sq ft

Kunkle bought by Keystone International ^{Hartsville} Nov 91
August made Gt ok to set these wells in their
studies

Waste Pile unknown - 1988 used

1045 begin vs

Coal Room

bad cases of floor sweepings
accumulated in 55 gallon drum

Photo 1 coal butt waste & accumulation

Coal butte & butt cone from S. to, stacked,
filtered, filtered sand reused

Filter stuff is muck & scrap

Muck & scrap sand disposal to be used
to the Ryan mill

photo 2 & 3 = miller room

55 gallon drums on left
Right 55 gallon drums on right system ^{Storage}
above sand

dust goes to rock bins and treatment
photo 4 back of hopper of stirring material

crucibles get broken up in Ball mill & treated

Refractory

Photo 5

photo 6 (L) Landfill drums have cuttings
Vibreen covered

treated sand & core waste stored
partially on a concrete pad
photo 8

wheelabrator dust signed & sealed
red hopper $\approx 1/2$ cu yd goes to Reclaimer
or speller for cu
photo 9 dust

photo 10
silica carbide old crucibles
Unknown - present

treated sand pile 88 - present

classifier 278 - present
brass drummed
dust hopper

6 55 gallon used oil containers
reclaimed by S-K

old binders next to the set
equipment since 1 yr ago
2 empty oil 1 full comp oil

1200 VSI ended

NPDES permit

Unnamed tributary to Lion Creek
phytoplankton log house

Air permit 1983 state said

City wells - facility is city water

6-18-92 reappplied

Huntington County Dallas Twp

Air permit for chip dryer to remove
fine metal from foundry

City of Huntington landfill 63,000 lb/mo

isocore scrubber waste

will take back

63,000 lb/mo

Next year will probably be when soil will be excavated

6 drums/year to S-H

DE45 isocore scrubber waste

2-3 drums every couple years

photo

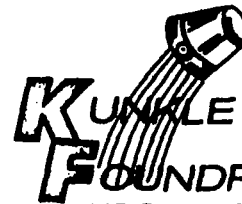
PSD Prc leaves facility

N Farm

S Railroad then Parks Residences

E Homes

W Industrial



CUSTOM
BRONZE



**KUNKLE
FOUNDRY Company, Inc.**
407 CALIFORNIA ST. ANDREWS, IN 46702

Kevin Steele
PLANT MANAGER

(219) 786-3496

[Handwritten signature]

(121)

June 1, 1993

- weather clear 65°

Kunkle Foundry - Andrews, IN

9:00 a.m.

- Brass Foundry - making valve
bodies - pressure release -

- Makes ductile core box sands -
casting sands - shell sands -

- Raw Materials -

clay -

Alloys - Ni, Al, Ti, Lead, Copper,
1 Bronze -

Spun Sand -

Pellets -

Binders -

R/L 6/1/93

(122)

June 1, 1993

Operations -

1970 bought by Kunkle
built in mid 50's by

Wheeler Essex -

Property has always been
a brass foundry -

currently 22 full-time + 4 management

Air Set Line - dismantled
in 1980's - used to

make castings with a chemical
binder sand - took out then
disposed of sand -

Induction furnaces used to
melt ingots - oil was
used to fuel furnaces until
mid-70's

John R. L.

(123)

June 1, 1993

Solders - heaters are gas fired -

No known underground storage tanks -

One above ground tank for heating oil -

currently not used -
not used since ^{mid} 1970's

Cracks are packed out of welds cleaned through a shaker -
Wheelabrators, then to end grinders -

Waste streams -

- waste sand from shot blast collects in a hopper - DOOS

- ball mill sludges - DOOS

Don't

June 1, 1993

(124)

baghouse dust - DOOS
on wheelabrator

- for separate baghouse

Potassium - DOOS

recycles toward -
FMEP

Floor Sweepings - DOOS

Refractory - DOOS

sand Aluminum Pan around crucible

Isocure rubber waste -

old bot. specimens -

neutralizing the catalyst

Isocure is a quick-set sand press

2 part binder + catalyst

used to set core

NOA

(125)

June 1, 1993

The scrubber from the cold
boiler process generates <

Food - Iso scrubber waste -
from - Air scrubber -

Naz. Haz

Oil - sand waste - Huntington City
Landfill

Iracore sand waste - "

Shell core sand - "

Air sed in pest - "

Waste oil - moving machines

Art. tanks

Compressors -

6/6/93 B.H. BL

June 1, 1993

(126)

Treated Urals - in on-site
treatment system -

Waste sand from Whalshaker -
ball mill -

Refractory -

floor sweepings

byproducts from Whalshaker
Just.

} Doors

all goes to Huntington Landfill
after treatment as a
special waste

treatment system used uses a
partially slurry solidification process
encapsulation?

6/1/93

(127) June 1, 1993

Treatment system pro on-line
in 2/92 - later part of
'92 did preliminary test

Built by August Mack
formerly Hoover Mack -
solidification/stabilization

Built in conjunction with the
closure of the waste

Materials were TCLP'd out
end of treatment unit

Materials handled were not
non-haz -

unit can handle

5 - tons/day -

was built to treat clean up

June 1, 1993 (128)

Current rate of treatment is
in 16 tpd/mo.

Name of the closure unit
has been treated in the
system - Wells have been
maintained -

Feb 26, 1993 -

We have copy of waste
pile close -

Soil & groundwater sampling -
in 1988 the pile was removed
to ground surface -

Sampling of soil around the waste
pile has been on-going since 1989
by RMT, Hoover/August Mack

(129)

June 1, 1993

Soil samples were collected to
~ 5' lgs in area directly beneath
former waste pile -

A hydro-pneut hydramunch was used to
collect

collected 3 hydro-pneut samples
from ~~soil~~ waste pile area -

Keystone (oldest of Houston) bought
Kumbak in 1944 - 1991

Keystone hired ATEC to

drill 5 - wells under - Mr.

Steele does not have copies
of the MW-1 - MW-5 wells - ?

not sure if ~~that~~ those have
been sampled relative to the

June 1, 1993

(130)

1045 - getting copy of IDEM's sample
locations

starting finally walk through

started tour in welding/cutting area -

- Core wastes in core room in
open segregation down -
floor sweepings -

Photo #1 -

Core room accumulation down

bolts the sand to shafts -

get out core bolts etc.

core bolts are damaged and

taken to Federal Hill to replace

(131)

June 1, 1993

Photos 2 & 3 - @ used sand

- Silo - and conveyor system -
 stake out before reclaim
 and treatment -
 - system sand storage etc
 floor sand can be dried and
 reused to make castings -

Photo 4 - skimming former

curvilinear - hopper -
 goes to reclaim/treatment
 and so

Photo 5 - refractory material
 settling accumulation

RHS 6/1/93

June 1, 1993

(132)

Photos 6-7 of waste p.l.

- area - looking west -
 empty oil tank to left -
 in Photo 7 -
 drums in photo contain
 drill cuttings -
 - area is an existing ligament

Photo 8 - treated sand

waste p.l. - gets all
 sand from core room
 oil sand, isocore, and air core
 and sand from treatment unit

looking North -
 East area is ~ 25 x 25

RHS 6/1/93

133

Photo 9 -

Red Lycopodium collect wholehouse -
- two unit to Nylon collect
buss grinding - to Rekinings

Photo 10 -

silver white - old crutches -
- in back yard

Photo 11 - air unit on machine
(ball mill)/AKA Rubber

Photos 12, 13

Treatment unit for

DODS wastes - 1.

Photo 12 shows brass cutting dust from
'slurry' unit, that is refed into
treatment system

RLL 6/1/92

134

Photo 14

used oil area / next to
virgin stores

Photo 15 -

old binders -
next to old air set
line - will probably be
taken off site as but -
discarded product -
alk. oil -
- have been accumulating
1 year

1200 - finished facility tour

- back at office getting
additional paperwork -

RLL
11/1/92

135

June 1, 1993 -

Permit No.

IN 0004634

~~Waste water treatment~~

Non-contact cooling water

Discharge Permit NPDES

to town water -

PH, present -

got copy

it is expired - according

to Mr. Steele they have

reapplied but have heard of
yet.

New permit was applied for
6/18/92

Air Permit

for chip dryer -

used to burn saw cutting oil

off bronze lat turningings from

valve plants - did not

RKR 6/1/93

June 1, 1993

136

use that very long -

not used now -

Air permit was issued

in 1979 for brass

founding

got copy

Waste identification - from
special waste forms and the

biomaterial report -

Need to look at isocore sensor
waste accumulation area

look at on dry out -

x 63,000 pounds/mo. of treated

sand and core butts -

non hazardous waste -

RKR 6/1/93

(137) June 1, 1993

Closure schedule - looking
at next year to complete
closure - -

Water usage in area is
from municipal water
well - not sure if anyone
in area is on private well -

look at core room -
to look at scrubber
unit -

Photo 16 -

cleanest from scrubber could
be placed in 570-day
in-front of dust unit
from treatment system

^{see} Photo - No. - 12 - offsite

Rm 4052 11/1993

June 1, 1993

(138)